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ORIGINAL ARTICLES.

SOME OF THE GRAVER AND RARER FORMS OF CINCHONISM.

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Although everyone knows that the preparations and alkaloids of cinchona bark occasionally produce very undesirable effects upon the human organism, there seems to be a widespread impression that results of a more serious character are not to be apprehended, and one is accustomed to see these preparations administered with utter recklessness. It is true, the unpleasant results observed are usually the outcome of idiosyncrasy, and are not part of the regular physiological action of cinchona. As ordinarily observed this action cannot be said to be toxic in the sense in which we speak of the toxic action of strychnine, of opium, of arsenic, and the other well-recognized poisons. We regard as exceptional the various cutaneous disorders, the disturbances of the digestive, the respiratory, the circulatory and nervous systems not infrequently observed, and usually hold them to be accidental expressions of the resentment of the economy at the presence of the drug, expressions of idiosyncrasy. Although graver forms of quinine intoxication may very often be considered as due to the peculiar susceptibility of the individual, it is certain that in excessively large doses definite, dangerous, and even fatal poisoning may follow. Beyond the limits of physiological action there is an indefinite area in which idiosyncrasy appears to determine the toxicity, in which there can be no *a priori* determination of the danger line. While there is but slight danger to life from any but inordinate doses, quantities but little beyond the limits of everyday administration are capable of entailing grave consequences. These graver effects of cinchonism present but few terrors to the general medical mind, and when considered in relation to the universal employment of cinchona preparations in medicine are indeed numerically insignificant, yet research shows that our literature abounds in indubitable evidence that their absolute frequency is by no means small. That the general medical public has failed to properly appreciate these dangers is largely attributable to the fact that many of the most important and intelligently reported observations have appeared in special journals.

Recent observation of disastrous results of cinchonism has prompted the writer to attempt to lay before this Association a brief *résumé* of a portion of the subject; and in bringing it before a body of gereral practitioners, he hopes to be pardoned for having presented in abstract and quite inadequately, a number of reports prepared with distinguished ability and with such minuteness of detail, that their exhaustive consideration can only be appropriately attempted by the specialist.

QUININE BLINDNESS.

Case 1.—On August 31, 1888, I was called to the country to see, in consultation, a young lady, 13 years of age, who had spent two weeks during the early part of the month at Atlantic City. She returned home on August 13th, not feeling well. She continued ill and on the 19th had a slight chill and took to her bed. She was visited by her physician who, finding her temperature to be 104° F., gave her sulphate of quinine in large doses, but without controlling the fever. The dose was gradually increased until she was taking 45 grains daily. She did not appear to be profoundly cinchonized; tinnitus was not very marked and deafness was slight. Her sight, however, began to fail and by the 27th she had become totally blind. The administration of quinine was not abandoned, and on the 30th she took three 10-grain doses. During this period the temperature ranged from 102° to 105° F., and the symptoms of typhoid fever became established. At the date of my visit she complained of slight pain in the occipital region. Her eyes were staring and her pupils widely dilated and quite irresponsive to light. There was a constant snapping of the lids, which the patient declared she could not control. There was complete blindness. She was not sensitive to the strongest light. No more quinine was given and the typhoid fever pursued a favorable course. On September 24th the blind-

ness was still complete, but by October 9th she was able to distinguish objects about the room, but with a field of vision still extremely limited. Dr. Russell Murdoch saw her on September 14th, and has kindly informed me, from his note book, that he found that "the arteries and veins were extremely reduced. There was entire loss of sight, both eyes being equally affected." On October 30th, after general tonic treatment and the use of strychnine, Dr. Murdoch found that the vessels had been restored to their usual size and the vision to $\frac{xx}{20}$, the field of vision alone remaining very slightly contracted.

Although the power of quinine to produce blindness in certain susceptible individuals, when given in excessive doses, has long been known, the fact has attracted suprisingly little attention until quite recently. As early as 1841 Giacomini[1] had observed quinine amaurosis. His case was as follows:

Case 2.—A man took from 12 to 15 grams (180 to 225 grains) of sulphate of quinine at a single dose. Within an hour he was seized with cardialgia, nausea, vertigo, incapacity of movement, and unconsciousness. Eight hours afterward there was subnormal temperature, cold extremities, livid lips and fingers, fetid breath, slow respiration, regular but very feeble pulse, inaudible voice, very dilated pupils, with sight and hearing almost gone. Recovery from this condi- took place very slowly.

Case 3.—(Lewis, 1845.)[2] This was a case of total blindness occurring during the administration of large doses of sulphate of quinine.

Cases 4, 5 and 6.—(McLean, 1846.)[3] In one case about 16 grains of sulphate of quinine were given hourly until nearly an ounce had been taken. Another patient took 3 grains hourly for three days, and the third had 3 drachms in 6-grain doses within thirty-six hours. In all perfect blindness was the result. Amendment was slow, and recovery was perfect in none. One patient for nearly a year could look steadily toward the sun without seeing it. When he began to see sufficiently to read he would perceive a small luminous spot upon the paper about one inch in diameter, outside of which all was cloudiness and confusion.

Case 7.—(Baldwin.)[4] A negro girl, 6 years old, was given 28 grains of sulphate of quinine in forty-eight hours, for a tertian remittent fever. Shortly after the last dose the skin became dry and restlessness became very pronounced. Convulsions followed. The pupils became dilated and total blindness ensued. She was able to answer questions. Two hours later, with blindness and dilated pupils, and restlessness, she died.

Case 8.—(Baldwin, ibid.) An adult male, with pneumonia, took 68 grains of sulphate of quinine in twenty and a half hours. One and a half hours after the last dose had been taken Baldwin saw him. A little while previously he had been seized with a jerking motion of the whole body. This lasted several minutes, and immediately afterward his vision was so imperfect that he could scarcely distinguish anything. There was great restlessness, anxiety and alarm. The pupils were dilated. Convulsive movements of the body came on every ten or twelve minutes, sometimes apparently of the whole body, sometime confined to the arms. During these convulsions he was not insensible—occasionally the eyes presented a vacant, staring look, with upward rolling. Three hours after the ingestion of the last dose of quinine he was completely blind. Vision began to improve in twenty-four hours afterward, but was never perfectly recovered.

Case 9.—Trousseau.)[5] A patient in whom a dose of 48 grains of sulphate of quinine had caused temporary blindness and deafness.

Cases 10 and 11.—(Guersant.)[6] Mme. Bazire, being seized with malarial fever, was given by her husband, a physician, in a very short space of time 240 grains of sulphate of quinine. Soon afterward, her symptoms becoming more grave, she was given, at one dose, 375 grains. Dr. B. now fell sick himself, and no more of the drug was administered to her, but within a short space of time he administered to himself, by mouth and rectum, 900 grains, and took in eight or nine days 5 ounces. Reveillon found him covered with cold-sweat, completely deaf and blind, with slow and difficult respiration, and in a profound stupor, with the physiognomy of a drunken man. In this condition he died. Mme. B. recovered imperfectly, having been for a long time blind and deaf. The senses of sight and hearing always remained feeble.

Cases 12, 13, 14 and 15.—(Briquet.)[7] These were four patients who had taken from 45 to 75 grains of sulphate of quinine daily for several days. Twice the blindness was transitory, lasting only a day, and then completely disappeared. In the third case the blindness lasted longer, and in the fourth case it only disappeared after a month. (Briquet also quotes Monneret as having seen four cases of temporary weakening of the sight, in two lasting only a few hours, in one a day, and in one four days. He also quotes Hatin as having seen a case of quinine amaurosis which lasted several months).

Case 16.—(von Graefe.)[8] A patient took 6

[1] Dictionaire de Médecine, 2m. Edition, Art. Quinine, p. 567.
[2] Western Jour. Med. and Surg., Louisville, 1845. 3d series, Vol. iv, p. 396.
[3] Ranking's Abstract, Illinois and Indiana Med. and Surg. Journal, December, 1846.
[4] American Journal of the Medical Sciences, April, 1847, p. 292.
[5] Dictionaire de Méd. Loc. cit.
[6] Dictionaire de Méd., 2me Edition, Art. Quinine, p. 567.
[7] Traité Therapeutique du Quinquina, Paris, 1853.
[8] Arch. für Ophthalmologie, Berlin, 1857, Vol. iii, pp. 683-685. Archives of Ophthalmology, Vol. x, p. 220. Knapp.

drachms of quinine within two weeks. There resulted, violent tinnitus, deafness, moderate amblyopia in the left eye, and almost total blindness in the right eye Four months later amblyopia of the right eye still existed. The visual fields and ophthalmoscopic condition in both eyes was normal.

Case 17.—(von Graefe.) A man took 15 grains of sulphate of quinine daily until almost one ounce was taken. When he increased the dose to 22 grains he had tinnitus aurium, hardness of hearing and weakness of sight, which increased in a few days to total blindness. Three months later blindness of the right eye was still complete. The sight of left eye was restored. Ophthalmoscopic condition and visual fields in both of these cases was normal.

Case 18.—(Voorhies.)[9] A young lady had taken within a few hours one ounce of sulphate of quinine, and one ounce additionally each day for the two succeeding days. On the morning of the second day she was extremely prostrate, hardly able to move her fingers. She had feeble pulse and hardly comprehended the simplest question. Audition was but slightly impaired, but she was perfectly blind. There was marked pallor of her face and of the palpebral conjunctivæ. The pupils were normal, responding promptly to light. There was anæsthesia of the cornea. The ophthalmoscopic examination revealed perfectly white discs. There was not a trace of the optic nerve vessels, veins or arteries. The choroidal vessels were empty. There was a pale, yellowish tinge of the retina. The treatment with amyl nitrite and quinine was not followed by improvement until the middle of the tenth week. The return of sight proceeded slowly until she was able to read Jaeger No. 1. More than a year afterward the optic discs remained perfectly white, with no trace of the central artery, except a small twig of that of the left eye, which was barely perceptible. The field of vision was greatly contracted, the greatest diameter (vertical) being less than 4″ when taken at a distance of 2 feet.

Case 19.—(De Wecker.)[10] A man took a large but indeterminate dose of quinine. He awoke perfectly deaf and blind. Eventually he recovered his sight and hearing, the former imperfectly. The accident occurred in the tropics and some time must have elapsed before De Wecker saw him.

Case 20.—(Solomon.)[11] A seafaring man, 30 years old, took a teaspoonful of quinine at one dose. There soon followed vertigo, chilliness, a sense of sickness and failure of sight. After some interval Solomon found that he could read brilliant type (Jaeger's No. 1), a single letter only at a time, so contracted was his field of vision, so complete was the anæsthesia of the retina, except at the point occupied by the yellow spot. The pupils were of normal diameter but moved sluggishly. The symptoms gradually subsided, and nine months afterwards the patient declared himself to be in perfect health.

Case 21.—(Roosa.)[12] The patient was a man who began to take compound tincture of cinchona to remove the cravings of the alcohol habit. He was 50 years old. On June 24th, 25th, 26th, 27th and 28th he continued to take this preparation in doses of from one to two ounces at short intervals. During these days he drank a quantity representing 125 grains of an alkaloid of cinchona. Two days later (July 1) he was stupid, with flushed face and conjunctivæ, and was apparently unable to see or hear. On July 3d hearing had become almost normal, but his sight remained much impaired. Vision: R. E. = quantitative perception of light. L. E. Could count fingers at a distance of one foot. The ophthalmoscope revealed lessened size of the arterial vessels, there was no abnormality in the veins, there was a lessened number of vessels on the papillæ, but no marked paleness. There were no changes in the membrana tympani. Strychnine was ordered. On July 6th he was able to walk about. Vision: = $\frac{2}{3}\frac{0}{0}$ in each eye, but the visual field was very much contracted. July 16th. Both visual fields were concentrically limited. Measurements drawn on a blackboard 14″ distant were: Rt. field, vertical 9″, horizontal 7½″; limitation most marked on the temporal side. Left field, vertical 7″, horizontal 8″, limitation more regular. Optic papulæ very pale and arteries narrow. July 20th. Vision: = $\frac{2}{2}\frac{0}{0}$ in each eye. Can see perfectly well in a straight line, but when walking about a room has some difficulty in seeing small articles of furniture. On April 23, 1879, his condition was substantially the same. The visual field was increased somewhat in the left eye, = 9″ vertically and 16″ horizontally. The optic discs remained pale and the arteries small. There were no other opthalmoscopic changes.

Case 22.—(Roosa and Ely.)[13] Mrs. B., 34 years old, was seen Nov. 7, 1879. She had pernicious malarial fever in Cuba in Nov., 1877. During one day she took 50 grs. of sulphate of quinine, during the next day 90 grs., and during the three or four succeeding days 30 or 40 grs. At 11 P.M. of the day upon which she took 90 grs. she became blind and remained so for three or four days. After that a gradual restoration of sight occurred. There were no aural symptoms. Her intellect remained clear most of the time. The blindness was so complete that she had no perception of light.

[9] Transact. Amer. Med. Assn., 1879, p. 411.
[10] Ocular Therapeutics. Translation. London, 1879.
[11] Ranking's Abstract, Vol. lv, 1872.
[12] Archives of Ophthalmology and Otology, 1879, Vol. viii, p. 392.
[13] Archives of Ophthal., Vol. ix, 1880, p. 41.

Vision was perfect before her illness, but had never been so good since. She felt as if there were a veil over her eyes and was unable to tell whether her linen was clean when it came from the wash. She could not see certain shades of dark blue well, but distinguished all other colors imperfectly; she had most difficulty with red. When her vision first began to return she had no color perception whatever. R. E. Vision = $\frac{2}{40}$; reads 1 Jaeger fluently. L. E. Vision = $\frac{2}{40}$; reads 1 Jaeger fluently. V. = $\frac{2}{30}$ with both eyes open. The fundus of each eye was somewhat indistinct; the discs were too white; the capillaries seemed deficient. The visual fields as tested at 12″ by Carmalt's perimeter were concentrically limited.

Case 23.—(Gruening.)[14] A woman, 35 years old, had a miscarriage at the sixth week. Septic symptoms succeeded. She was given 80 grs. of sulphate of quinine in thirty hours. Shortly after the last dose she had convulsions characterized by twitchings of the facial muscles and jerking of the upper and lower extremities. She did not lose consciousness during this attack. When this had passed she was totally deaf and blind. Her hearing returned in twenty-four hours. Gruening found the pupils dilated *ad maximum*, without either direct or consensual contraction. Accommodative contraction was clearly demonstrable when the patient made a strong convergent effort. Both refractive media were clear. The optic discs were pale and transparent, with well defined outlines. The retinal arteries and veins were so attenuated that in the inverted image they could hardly be perceived. In the upright image the vessels appeared as continuous, exceedingly narrow bands tapering to fine points somewhat abruptly. The slightest pressure upon the eyeballs made all the vessels bloodless. At the macula of each eye there was a cherry-colored spot surrounded by a zone of bluish-gray opacity. Blindness was absolute—the light of an Argand lamp concentrated upon the eye by means of a convex lens was not perceived. There was no phosphene by pressure. The galvanic current elicited no reaction of the optic nerve. There was no pain. Hearing was blunted. The tympanic membrane was not injected; there was no albuminuria. Eight days after the occurrence of blindness Knapp saw the case and agreed in the diagnosis of quinine amaurosis. At that time the circumvascular retinal opacity and the cherry-colored spot at the macula had disappeared; the optic discs and the retinal vessels remained unchanged. The pupils were moderately dilated and fixed except with efforts of convergence, when slight contraction was noticeable. July 19 (twenty-second day) she could discern the position of the window. She had quantitative perception of light in both eyes. After losing and regaining perception of light more than once she was finally (August 16, about seven weeks after the attack), able to count fingers with either eye at a distance of 4 feet. August 30 she read ordinary type with + 3 D., her hypermetropia being 3 D. The letters, however, appeared white upon a black ground. She was totally color blind. On September 23 the pupils were moderately dilated without any direct or consensual action, but contracted with accommodating efforts. Refractive media clear. The optic discs were still very pale but transparent. The retinal veins and arteries were filiform, with + 3 D.; her sight was $\frac{2}{20}$ and she read Snellen 1½ with either eye. Field of vision concentrically limited; that of the right eye measured 30° on the temporal side but did not extend to 20° in any other direction; the left eye vision was still more contracted, extending to about 18° on the temporal side, less than that in all other directions. On Snellen's color chart she recognized no color. All the letters appeared gray to her, but the yellow ones were much lighter than the others. In the spectroscope she saw only a number of gray stripes of different shades. November 8. The field of vision slightly enlarged and color sense improved. December 28, 1880, she was able to distinguish the four fundamental colors, yellow, blue, red and green; the two latter, however, only when presented in large surfaces. The fields of vision were increased.

Case 24.—(Buller.)[15] A woman, 34 years old, had recently been confined. Septicæmic symptoms appearing, she was given two doses of sulphate of quinine, of 20 grs. each, during the first twenty-four hours, the same doses on the second, and on the third day she took three doses of 20 grs. each. On the following day fever and delirium were gone, but she was absolutely blind. Buller saw her during this day (August 27, 1879). Externally, the eyes appeared normal. The tension and movements were natural, the pupils were widely dilated and not responsive to the strongest illumination, nor to the effort of accommodation. The refractive media were normal. Left eye. There was a diffuse, bluish-gray haziness or turbidity of the retina for a considerable distance in every direction, most markedly in the region of the macula, the centre of which, by the direct method, had the appearance of a cherry red patch about 1 line in diameter. There were no retinal hæmorrhages and no choroidal changes. The retinal veins as compared with the retinal arteries were unusually large, but decidedly paler than in healthy eyes. The arteries were normal except actually or relatively diminished in size. Arterial pulsation was readily evoked by pressure upon the sclerotics. The opacity of the retina nowhere obscured the vessels, and the small branches converging toward the macula were unduly conspicuous. The retinal cloudiness gradually faded toward the periphery. *Right eye.* The

[14] Archives of Ophthal., Vol. x, 1881, p. 91.

[15] Trans. Amer. Ophthal. Soc., 1881, p. 262.

same changes were present, though to a less degree. By 5 P.M. of August 29 (second day) she was able to distinguish bars of light through the Venetian shutters. September 1 (fifth day), at a distance of 15 feet vision was clear over a surface 1 foot in diameter and indistinct over an area of 2½ feet. She could tell blue and red letters in a motto across the room. On the seventh day she could distinguish all colors in a subdued light, but for the first time there was noted a marked diminution in the calibre of the retinal vessels. The condition looked like one of moderately advanced atrophy. September 4. The retinal vessels were not half their normal size. The cornea was not anæsthetic. September 6. Read Jaeger 8 easily without glasses. November 1. At a distance of 14″ the vision of the left eye was: upward 8″, downward 9½″, inward 8″ outward 12″. Vision = $\frac{20}{30}$. She could distinguish all colors, at the centre only. After an interval of twenty-two months, there was a total abolition of all sense of color except central color perception, which was perfect. Central vision was perfect. The nerves were both pale but not white. The arteries and veins were not more than one-third as large as normal. The arteries could not be traced as far as the ophthalmoscopic border and some of them had white bands for a short distance. Some of the veins, however, were not lost. Subjective sensations of light and after-images that were formerly quite troublesome were now only occasionally noticed. Buller assumed that the final changes had now been reached.

Case 25.—(Webster.)[16] A man, 23 years old, had taken, seven years previously, during the course of a night, half a dozen large doses of sulphate of quinine. The next morning he was totally blind. He remained thus only a few hours, but he had never seen so well since. Vision, right eye, = $\frac{20}{30}$, with + $\frac{1}{48}$ C., axis 90°. Vision, left eye, = $\frac{20}{40}$; not improved by glasses. Ophthalmoscopic examination. Except that there were whitish bands running along the borders of the nasal branches of the left central retinal vein and that the optic disc of the same eye was slightly paler than it should be, both eyes were normal.

Case 26.—(Webster.)[17] A lady, 40 years old, after frequent attacks of cholera morbus, had a very severe seizure of the same malady on July 25. Quinine was given *per rectum* until she had received 105 grs. (in doses at intervals of three hours). Next day its use was resumed, she was given 5 gr. doses every third hour up to 25 grs. whenever there seemed to be signs of the return of a chill. (She had also taken, as a tonic, 5 grs. of quinine daily ever since until January 13.) On the third day of her attack she became aware that she was blind and very deaf. Her hearing returned in a few days. The return of vision was gradual, but it remained extremely imperfect. January 13, she could see a circle of light about a yard in diameter when she looked at a lighted lamp, or saw as if the light were shining through a thick fog. At first she only saw through the extreme outer corners of the eyes and not at all in front. Now, objects seen on either side were dark, while those in front were still outlines of golden light. Present condition. Right eye = $\frac{1}{200}$; left eye = $\frac{1}{100}$. The discs were perfectly white and the arteries were entirely obliterated and replaced by white lines. The very few minute retinal arteries had white lines along their sides. There were a few white, fleecy looking connective tissue changes in the retina near the disc and a mottled condition of the choroid. The pupils dilated downward and outward nearly symmetrically and there were deposits on the anterior capsules of the lens. She derived no benefit from treatment

Case 27.—(Michel.)[18] A man, 38 years old, took in twenty-four hours 40 grs. of sulphate of quinine. During the next twenty-four hours he took 50 grs. Then during the following night he took 220 grs. in powder. Part of this was not retained. Suddenly, at midnight, without pain, his vision became totally extinct, "just as if you had blown out a lamp." Deafness was not absolute. It lasted ten days, but he never regained his previous acuity of hearing. Four weeks later both pupils were widely dilated. Neither the strongest light nor sulphate of atropine affected them in the smallest degree. The optic discs were white with a slight tinge; the inner third (inverted image) somewhat darker in hue. Scleral rings were very marked. The *arteriæ centrales* were barely visible as minute threads, not traceable far from the origin of the disc. The veins were less than one-half their normal size. The choroids were pale. March 9 (five weeks), the arteries and veins were slightly increased in size and color. The patient thought he could perceive a slight glimpse of light. March 21, the retinal vessels were even more threadlike than at any time since first seen. By the following August (six months), he noticed that in certain positions he could perceive varying degrees of light. By the middle of October he was able to roughly locate an object held up before him. By November 1 he could read words in a newspaper. Since then the patient thought there had been no improvement. February 14, vision R. E. = $\frac{1}{15}$; L. E. = $\frac{2}{15}$. Both eyes together = $\frac{1}{5}$ imperfectly. Field of vision, tested at 1 metre: Right, in vertical diameter, = 23 cm.; right, in horizontal diameter, = 29 cm. Left, in vertical diameter, = 18 cm.; left, in horizontal diameter, = 24 cm. Pupils in the strongest light = 4 mm.; pupils in ordinary light = 5 mm. They responded slowly. Ophthalmoscopic examination: All of the retinal vessels had increased in calibre; the

[16] Archives of Medicine, Vol. x, 1883, p. 338.
[17] Archives of Medicine, Vol. x, 1883.
[18] Archives of Ophthalmol., Vol. x, p. 214.

arteries were about one-third their normal size; the veins about one-half. The arteries could be followed two-thirds of their normal course. March 9, the field of vision was improved in both eyes. May 5, the field of vision unchanged in right eye, apparently a little less in left eye. Tested with Galezowski's *echelle chromatique*, he saw no color in grade No. 1 (No. 1 consists of very light shades of red, yellow, green and blue). In grade No 5, red and yellow were easily distinguished, blue with some difficulty, green not at all; violet looked like "dirty white." In grade No. 10, red, yellow and blue were promptly distinguished; violet was called purple; green looked like a mixture of green and yellow. In grade No. 15, red, yellow and blue were quickly recognized; green was not seen. (He acknowledged that before his blindness he did not know colors well.) June 1 (sixteen months). The field of vision was unchanged, likewise the size of the pupils, but they responded promptly to light. No changes were observed in the fundus of the eyes.

Case 28.—(Baumgarten. Reported at the same meeting at which Michel's case was related.)[19] A boy, after taking what was estimated to be about 5 drachms of quinine, lost sight and hearing. He recovered in about six weeks.

Case2 9.—(Knapp.)[20] A girl, 7 years old, had been treated for malaria three months previously and had taken a great deal of quinine. On the sixth day she became hard of hearing, and for four days could see nothing and the pupils were immovable. On the tenth day she saw fire in the grate. Improvement had been slow, and she continued to have weak sight, and she felt uncertain in walking. When Knapp saw her she could easily read Snellen xx at 20′, and 0.25 at 8″ with each eye, with moderate concentric limitation of visual fields. Color perception was normal. Both optic discs were white, the retinal vessels scant and very small, especially the arteries (February 16, 1878). May 11, 1879. Four months previously she again took quinine for malaria; no more, however, than 10 grs. in one day. From that time her sight was impaired. Knapp found S. $\frac{20}{200}$ in the right and $\frac{20}{100}$ in the left eye. She read 0.50 with difficulty, no improvement with glasses. She was green-blind. Field of vision was very much contracted; in the right eye almost to the point of fixation, in the left having a diameter of 15°, of which 5° were on the nasal, 10° were on the temporal side, from the point of fixation. The optic discs were white; the blood-vessels, especially the arteries, few and small. Now referred the disturbance to the influence of quinine. In May, 1881, her sight was $\frac{20}{30}$ in each eye. Emmetropia. She experienced no inconvenience from her eyes in any way. Her perception of color, carefully tested, was perfect. Her light sense was normal; her field of vision, however, was contracted. The optic discs were white, with a faint pinkish tinge. Both arteries and veins were few and small, but none were white. The choroidal vessels, clearly visible, were normal in color, size and distribution. Otherwise the appearance of the *fundus oculi* was normal.

Case 30.—(Knapp.)[21] A boy, 17 years old, had had "a terrible malarial fever from sewer-gas," four years previously. He was ill two weeks. After the first day he took large doses of quinine every third hour for a whole week. In the second week he took one large dose every day before the attack. The pupils dilated. On the tenth day he did not see anything; later, he gradually and very slowly recovered his sight, but he has been awkward and stumbling ever since. For two and one-half years nystagmus had been noted. Condition on examination: "Vertical vibratory nystagmus. Periodic divergence of the right eye; pupils move well. Optic discs white; vessels very small, some converted into white cords. V. R. $\frac{20}{100}$; L. $\frac{20}{40}$. Recognizes colors correctly. Field of vision in both eyes concentrically contracted; in the right eye to a diameter of 20°; in the left eye, of 30°.

Case 3.—(Knapp.)[22] A boy, 8½ years old, had cerebro-spinal meningitis when in his third year (mother's statement). He was brother to the preceding case. He took a great deal of quinine. When he came out of his stupor at the end of two weeks, he could not see anything, not even a bright light held before his eyes. After some weeks he began to see a bright light and very slowly recovered his sight, his eyes remaining weak for some years. When Knapp saw him, December 18, 1880, his optic nerves were pale, the left more so than the right; atrophic-looking. The retinal blood-vessels were abnormally small. He was myopic and read with — $\frac{1}{18}$ Sn. lxx at 20′, and 0.50 near by, with each eye. Visual fields were moderately contracted and had the shape of a horizontal ellipse. June 8, 1881. Light sense normal; color sense carefully tested proved normal too, but he had some difficulty in recognizing contrast shadows and called the yellow shadow from a blue glass, brown.

Case 32.—(Saunders.)[23] A boy, 8 years old, who had been healthy previously, was taken ill September 15, with fever and vomiting. On the 16th he was ordered to take a 6 gr. capsule of quinine every second hour. The third capsule was rejected. No more was given until the next day, when he took doses of 12 grs. every second hour until three doses had been given; then, the stomach becoming irritable, 20 grs. were given by enema. The quinine was now withheld until midnight of the 17th, when 10 grs. were given by the mouth, but were rejected. This dose was

[19] St. Louis Courier Med., November, 1880.
[20] Archives of Ophthalmol., Vol. x, 1881, p. 223.
[21] Ibid. [22] Ibid.
[23] Mississippi Valley Med. Monthly, No. 11, 1882, p. 433.

repeated and, after its partial rejection, 20 grs. were given by enema. This was partially thrown off and 20 grs. more were administered by enema at 4 A.M. (The patient had been quite deaf for the past twenty-four hours. He had taken more than 100 grs. in three days.) Shortly after this hour he became more deaf and stupid and difficult to arouse. His respiration was labored and quite slow, only 4 or 5 per minute. His attendants becoming alarmed, active efforts at resuscitation were practiced, and he rallied in about one hour, but he was totally blind, not able to distinguish light from darkness. Deafness lasted thirty-six hours; blindness four days. Saunders also refers to three other cases of quinine amaurosis as having occurred in the neighborhood of Memphis during the past few years.

Case 33.—(O'Bryen.)[24] A man, æt. 33 years, had high fever. A ship's surgeon attempted to reduce it by giving quinine; this was taken in doses of 25 or 30 grs. every second hour (January 6). On January 7, the patient noticed buzzing, deafness, dimness of vision and finally total blindness. On March 20, he remained totally blind. His pupils were widely dilated. There was no albuminuria. About twenty days later he was able to perceive a blue and white handkerchief at a distance of about 3 feet. At a later report, sight appeared to be slowly but steadily improving.

Case 34.—(Dewey.)[25] A man, 22 years old, was seized with pneumonia. There was a prolonged cold stage, lasting some hours, during which his physician gave him ½ oz. of sulphate of quinine in divided doses. A good deal of this was rejected by vomiting. In less than twelve hours he was totally blind and deaf. The deafness entirely disappeared in seven or eight days, but the blindness remained. After three months he could hardly distinguish night from day. His sight gradually improved, and at the end of eighteen months he was able to go about his farm and to attend to business a little.

Case 35.—(Bruns.)[26] A young man, 24 years old, suffering from malarial coma, was given 480 grs. of sulphate of quinine within twenty-four hours. There was a sudden reduction of vision to light perception. The further course was not reported.

Case 36.—(Roosa,)[27] Mrs. L. took for malarial coma, 30 gr. doses of sulphate of quinine, *per rectum* two or three times. Consciousness was restored upon the third day, when she was found to be unable to distinguish light from darkness. The pupils were dilated and the ocular conjunctiva greatly congested. For some time there was no improvement, and when recovery began, it was slow. After six weeks she could not see to walk alone but could distinguish, with difficulty, colored objects in the room. She could count fingers 4 feet distant, but could not make out a letter. The ophthalmoscopic appearance were those usually seen in similar cases. Under the hypodermic use of strychnine there was much improvement. This patient had marked nystagmus and eccentric vision.

Case 37.—(Gruening.)[28] A lady, 50 years old, took 30 grains of quinine on account of malarial intoxication. On the following morning she awoke blind and deaf. The deafness lasted until the evening and the blindness began to disappear the succeeding morning. Five days afterward she had a perfectly healthy fundus in each eye. Central vision was normal, but the fields were much contracted, not more than 30° in any diameter.

Case 38.—(Diez.)[29] A boy, 6 years old, suffering from chronic malarial poisoning, took heavy doses of quinine. As the fever disappeared there developed divergent strabismus, more pronounced in the right eye. There was also exaggerated dilatation of the pupils. Vision in each eye diminished more and more until he could hardly distinguish light from darkness. The ophthalmoscopic examination showed perfect transparency of the refracting media. The optic nerve papillæ were pale and the retinal vessels very much contracted. Under treatment with strychnine there was very decided improvement during the thirty days he was under observation.

Case 39.—(Peschl.)[30] A woman, 28 years old, had taken from 45 to 60 grains of quinine in six days. There developed suddenly symptoms of cinchonism, especially blindness and deafness. The former symptom lasted only several hours, the latter, two days. Five days afterwards central vision for colors had not returned. The field of vision was much restricted. There was extreme ischæmia of the fundus of the eyes. The papillæ were pallid, but circumscribed. There was slow but continuous improvement. Color perception returned, but fields of vision remained very limited. Nine months later the visual power was normal, but the field of vision for colors notably restricted. The fundus remained very anæmic, the arteries were accompanied by white streaks.

Case 40.—(Hobby.)[31] A young lady, 21 years old, had taken large doses of quinine for supra-orbital neuralgia. When seen by Hobby the right eye was apparently normal. The pupil of the left eye was widely dilated and not appreciably affected by light. The ophthalmoscope revealed intense ischæmia of both retinæ. O.D.S. $=\frac{16}{\text{xxxii}}$; O.S.S. $=\frac{3}{\text{cc.}}$. There was improvement under treatment, but the neuralgia becoming

[24] British Med. Journal, i, 1886, p. 823.
[25] Trans. Med. Assoc. of Missouri, 1882, p. 161.
[26] New Orleans Med. and Surg. Jour., June, 1888.
[27] Trans. Amer. Ophthalmol. Soc., 1887, p. 431.
[28] Transact. Amer. Ophthalmol. Soc., 1887.
[29] La Ophthalmologia Practica, Madrid, 2, 1883, p. 13.
[30] Ann. di Ophthalmologie, Vol. xvi., 1887-88, p. 421.
[31] Archives of Ophthamol., 1882, Vol. xi, p. 34.

severe and markedly periodical she was given 20 grains of sulphate of quinine in two doses one hour apart. Upon the fourth day following this she returned to Hobby with both pupils dilated to the utmost. O. D. S. = $\frac{16}{cc.}$; O. S. S. = $\frac{3}{cc.}$. The visual field was reduced to one-tenth of the normal. Both retinæ were profoundly ischæmic. Quinine amaurosis recognized and strychnine administered hypodermically. There was rapid improvement; in ten days the acuteness of vision had returned to $\frac{16}{xx}$ in both eyes; the visual field in each had doubled. Six weeks later the visual acuteness remained unchanged. The visual field had increased but was still less than half the normal.

Case 41.—(Nettleship.)[32] A man, 26 years old, who had been ill with fever in Western Africa toward the end of Summer. Before leaving the Coast or during the early part of the voyage he took 7½ grains of sulphate of quinine, in divided doses, daily, for two days, and on the third day he took the same amount in a single dose. His sight rapidly became dim during this day, so that he could neither read nor see distant objects clearly. He took no more quinine. His sight improved, but had not entirely recovered when Nettleship saw him, three weeks later. He informed N. that two years previously he had dimness of vision for a single day while taking quinine.

Case 42.—(Nettleship.)[33] A man, 29 years old, had had Congo fever in June (22d). For this he took immense doses of quinine. Three days later he discovered that his sight was very bad. He quickly recovered from his fever and started for home. By July 3d he was able to read. Nettleship saw him August 19th. Visual acuteness was nearly normal. There was very marked contraction of the field for colors, especially for red and green, the color, as a rule, being only recognized when close to the center. Though vision was almost perfect it was not quite so in bright light, and early in the morning he saw everything as through a mist. The optic discs were rather pale all over and the neighboring parts of the retina slightly hazy. The arteries were decidedly diminished, the veins normal.

Case 43.—(Doyne.)[34] A patient, in whom blindness supervened in the night while he was taking large doses of quinine. The arteries were contracted to mere threads and scarcely conveyed blood beyond the disc. Complete blindness lasted for several days. Vision was slowly recovered, but the fields of vision were still very contracted. Though the accident had occurred several months previously the arteries remained contracted and the discs were still whitened.

Case 44.—(Dickinson.)[35] A boy, 10 years old, had ague, August 3d, 5th and 7th. During the intervals his father gave him about 30 grains of sulphate of quinine. On the 11th he complained of feeble vision and darkness. On the 13th vision was so diminished that he could hardly see to eat. His vision continued to decline and in a day or two he lost all perception of objects, and even of the light of day. Occasionally he perceived flashes of red light and had pain in the occiput. This extended forward on each side to the external canthus. There was also pain in the neck and back. When Dickinson saw him, August 22d, he was totally blind. The external appearance of the eyes was normal. The pupils were dilated and not responsive to light. All dioptric media were intact and transparent, but there was marked congestion of the retinal and choroidal vessels, together with a remarkable tumefaction of the optic disc, it appearing swollen and pushed forward prominently with the vitreous. Its condition was very similar to that denominated "stauungs papille," "choked disc," the usual concomitant or resultant of neuro-retinitis. A stasis of blood had been occasioned, in which the lamina cribrosa had especially participated. Under treatment, quite good vision had been regained in ten days, and two weeks later advices were very encouraging. Vision returned first in the right eye, which had also been the first to be affected. It was stated that the boy's mother had had a similar experience.

Case 45.—(Browne.)[36] A powerful man, 34 years old, who had had syphilis in 1877, was seized with pneumonia on January 4th. On January 6th, his temperature being 104° F., he was ordered to take 10 grains of sulphate of quinine every sixth hour. January 9th, temperature 105 F., the dose of quinine was increased to 30 grains every second hour. He thought he took about 120 grains. On the afternoon of the 7th he became deaf, and remained so about twenty-four hours. About 4 P.M. there was a flickering before his eyes and his sight went, "exactly as if you had turned out the gas." He could tell the difference between sunlight and darkness by the periphery of the left retina. Centrally he could not do this. The pupils were widely dilated. He could not see the flame of a candle. Six weeks after his attack his sight began to return. Recovery for central vision was rapid. March 24th Messrs. Power and Vernon saw him at St. Bartholomew's Hospital. Both optic discs were white, the vessels small and contracted. The left pupil was slightly the larger. Both acted slowly to light and to accommodation. Vision: Right eye = $\frac{5}{5}$ Sn. 1½. All colors had a dirty, faded look. Left eye, $\frac{5}{7.5}$ Sn. 1½. He named and matched colors pretty correctly. The fields were much con-

[32] Transact. Ophthal. Soc. Unit. Kingdom Vol. vii, p. 218.
[33] Transact. Opthal. Soc. Unit. Kingdom, Vol. vii, p. 219.
[34] Ibid.
[35] St. Louis Med. and Surg. Jour., Oct., 1881, p. 352.
[36] Transact. Ophthal. Soc. United Kingdom, Vol. vii, p. 193.

tracted. There was a small area of perception of white on the outer periphery of the left field. Field for color limited to the *forea centralis*. Browne saw him on April 19th. Pupils 3½mm, equal, acting to light and to accommodation. Central color vision quite perfect. Vision: R. $\frac{20}{20}$ $\frac{20}{15}$ 2; 1 Jaeger at 12″ fluently. L. $\frac{20}{30}$ 5 $\frac{20}{20}$ 2; 1 Jaeger at 12″ fairly. Slight paresis of left internal rectus; optic discs pale; vessels remarkably small and contracted. There were no other changes in the fundus. Dec. 4th. There was scarcely any change, except slight failure of vision in the left eye. V.: R. = $\frac{20}{15}$ 6. L. $\frac{20}{40}$ 4. When reading 1 Jaeger with the left eye the letters danced (slight weakness of internal rectus?). The fields were unaltered. He could distinguish a light thrown from a small mirror up to the periphery of the retina. Very curious telescopic vision. Health was remarkably good.

Case 46.—Galezowski,[37] quoted by Browne.) Blindness occurred in a man who took 105 grains of quinine. It was complete. The patient could not see the sun. This lasted some days. Seven months afterward his vision = $\frac{20}{30}$ — 2 J. difficult. During convalescence he had central scotomata for awhile. There was no contraction of the field. The optic discs were pale and the vessels very contracted.

Case 47.—(Championiere—quoted by Browne.) A woman who took from 45 to 60 grains of quinine became completely deaf and blind, and could only communicate by touch. She recovered both sight and hearing.

Case 48.—(E. Williams—quoted by Browne.) A man took one ounce of quinine in four days, and became totally blind and deaf. Both sight and hearing were restored in six weeks. Hearing was permanently impaired. The optic discs were white and the vessels small. The vessels were contracted concentrically.

Case 49.—(E. Williams—quoted by Browne.) A boy, 14 years old, who took a large dose of quinine. He was totally blind for four days. The optic discs were white. The visual fields were contracted.

Cases of amblyopia from the excessive use of quinine have also been reported by Nucl,[38] Hixson,[39] H. C. Wood,[40] who mentions that he has seen complete temporary amaurosis produced in a lady by 12 grains of quinine. The subject has also received attention from Lopez,[41] Masimiliano,[42] and a number of other writers. Blindness has likewise been noted, as will be shown later, among the symptoms of dangerous and fatal general poisoning by quinine.

In the (more than fifty) cases of quinine amaurosis of which I have found records, the blindness was absolute in nearly all, but, unquestionably, if careful research were instituted it would be discovered that impaired vision is not at all an infrequent symptom of cinchonism. Rogers[43] has already called attention to this phase. He asserts that after the ingestion of 20 grains of sulphate of cinchonine the following phenomena may be pretty constantly observed: In about one hour there are cardiac weakness and irregularity, and much debility with tremor. Paresis of visual accommodation progresses to such an extent as to be almost complete in many instances at the end of the second hour; at this stage even the emmetropic eye will require the aid of a No. 10 convex glass to properly distinguish objects at the normal near point. This paresis, he says, lasts eight or ten hours. Probably the great majority of cases of incomplete quinine amaurosis escape observation and record. Briquet, who saw four such cases thus describes the evolution of the symptoms. Says this writer, the patient begins to complain of the light, and the effort to fix the eye upon objects is painful. There is a sensation like that produced by using strong glasses. The eye is brilliant. The pupils are usually normal and the conjunctiva not injected. There is, then, a slight degree of excitation of the optic nerve, analogous to that so often seen in the beginning of paralysis of the nerve. In a more advanced degree, patients see as through a mist. Objects seem small, or double, or are not perceived at a distance of 2 or 3 metres. Finally incomplete amaurosis may occur, when the pupils become dilated, insensible to light. Briquet quotes Monneret as also having seen four cases of this incomplete amaurosis. A number of the cases here presented in synopsis were examples of incomplete blindness. For instance, Bruns' case was one of sudden reduction to perception of light, so was that of Diaz. Nettleship had a case in which, after doses of 7½ grs. of quinine taken in two doses daily for two days and a similar dose taken on the third day, the sight rapidly became dim, reading became impossible and distant objects were seen indistinctly. This patient had two years previously had indistinctness of vision after taking quinine.[44] In most cases the blindness develops suddenly. More than once it has been described as occurring "just as if a lamp had been blown out." In many cases, however, vision fails much more gradually. Blindness generally becomes complete within twenty-four hours, though in some cases several days may elapse before this occurs. The duration of total blindness, the absence of all perception of light, varies within wide limits, from a few hours (Peschl, Webster, *et al*) or a day or more (Briquet, Baldwin, Buller, Gruening, *et al*) to several, even many, weeks (three, Gruening; five, Michel; ten, Voorhies; nearly

[37] Les Amblyopies Toxiques, 1877, p. 148.
[38] Nagel's Jahresber, 1871.
[39] Leavenworth Med. Jour., 1869-70, iii, 215.
[40] Therapeutics, Materia Med. and Toxicol., 1877.
[41] Recueil d' Ophthalmologie, Paris, 1888, x, 79.
[42] Osservatori, Torino, 1888, Vol. xxxix, p. 32.
[43] Alienist and Neurologist, 1882, Vol. iii, p. 445.
[44] Loc. cit.

three months, Dewey). In most cases perception of light returns within a few days. I can find no case recorded where blindness remained absolute. In all sight is recovered, though often slowly, and nearly always imperfectly. Six months after the beginning of blindness one of Gruening's cases was still partially color-blind and the fields of vision remained contracted. During the greater part of the first year one of McLean's patients "could look steadily at the sun without seeing it or even without any painful sensation being produced." In one of Roosa's cases the visual fields remained contracted, the optic discs pale, and the arteries small. In another the patient, whose vision was said to have been perfectly normal previously, felt, after two years, as if there had been a veil over her eyes, and she could not tell if her linen was clean as it came from the wash. She was also unable to distinguish certain shades of dark blue. In Voorhies patient the optic discs remained perfectly white after nearly a year, and there was no trace of the central artery, except a small twig. The visual field was greatly contracted. After an interval of twenty-two months, Buller found in his patient a total abolition of all sense of color, except by central perception. Central vision was perfect. The nerves were both pale, but not white. The arteries and veins were not one-third as large as normal. Webster reported a case, where, seven years after the beginning of blindness, which was total only a few hours, the sight remained impaired. Browne states that in one case the visual field remained contracted after fifteen years. In nearly every case where the condition of the sight was accurately determined some damage to vision remained when the patient was last observed. As regards peripheral vision the blindness remains permanent. Central vision gradually returns to the normal after some days, weeks or months (Gruening).

The exact nature of the eye affection has been carefully studied by Voorhies, Roosa and Ely, Gruening, Knapp, Buller, Webster, Michel, Browne and other ophthalmologists, and we are able to-day to recognize in quinine amaurosis a pretty well-defined symptom—complex. This is constituted by 1. Transitory blindness, complete or incomplete, usually developing suddenly. This blindness may be more complete than in any other recoverable condition, and is comparable to the blindness of atrophy (Browne). 2. Color-blindness. As sight begins to return most cases will be found to be color-blind, completely or partially. The color sense gradually returns and may ultimately become restored. In some cases the diminution of light sense is permanent. 3. Wide dilatation of the pupils. The pupils are irresponsive to light, but are said to respond to accommodative effort. It is to be inferred that the dilatation is due to the blindness, and that there is no implication of the third or sympathetic nerves. 4. There is pallor of the optic discs and extreme diminution of the retinal vessels, both veins and arteries. In many cases this is permanent. In cases examined early by the ophthalmoscope, a whitish haze, with cherry-colored spots, has been observed at the maculæ, as in cases of embolism (Browne, Buller, Gruening). 5. There is contraction of the visual field. This is extreme and expands slowly. There is no reliable evidence that it ever regains its normal extent. "The contraction is concentrical or elliptical, with the longest axis in the horizontal direction." (Knapp.) Impairment of hearing (at times to total deafness) with *tinnitus* appears to be present almost invariably. It is rarely complete more than twenty-four hours and gradually disappears. Some variations from this type have been noted. Voorhies' patient had anæsthesia of cornea. Diez, Knapp and Browne observed divergent strabismus. One of Roosa's cases had marked nystagmus; likewise one of Knapp's. Dickinson noted in his patient "marked congestion of the retinal and choroidal vessels, together with a remarkable tumefaction of the optic disc, it appearing swollen and pushed forward prominently with the vitreous. Its condition was very similar to that denominated 'stauungs-papille,' 'choked disc,' the usual concomitant or resultant of neuro-retinitis." This is a striking variation from the, otherwise, universal experience, and it may not be impossible that the symptoms in this case were expressions of malarial intoxication, such as are occasionally observed.[45] Taken altogether the symptoms of quinine amaurosis are strikingly definite and constant. Knapp's first case appears to show that relapse may be excited by quite small doses. One of Nettleship's patients exhibited the predisposing idiosyncrasy in its extremest degree, his sight being seriously damaged by 23 grains of quinine administered during three days two years after he had been similarly affected by quinine.

The pathogenesis of quinine amaurosis is by no means understood. Browne remarks that the subjective symptoms and ophthalmoscopic appearances resemble those of embolism of the central artery or hæmorrhage into the optic nerve, but that the bilateral occurrence and complete recovery of central vision refute this theory. He considers the anæmia of the retina to be local and that the occlusion of the arteries is probably not retro-ocular and is not complete, or atrophy of the optic discs would have occurred, as it does after embolism. There is no sign of perineuritis. There is no pressure. Buller, who thinks that the seat of the morbid changes is the optic nerve between the chiasm and the eyeball, notes that a galvanic current applied to the optic nerve of a

[45] Ledda. Temporary Bilateral Amblyopia in Consequence of Malarial Poisoning. Lo Spallanzani, 1885, Vol. xiv, p. 201, *et al.*

rabbit will speedily induce a blanching of the retina and nerve similar to that which occurs in quinine blindness. He details an example where, by the same means, he accidentally produced a similar picture in the human eye. The needle, introduced back of the orbit, he thought, must have penetrated the optic nerve. After the application had lasted one and a half minutes the pupils became widely dilated and the patient averred she could not see. A few minutes later the vision in this eye was reduced to counting fingers at a distance of one foot. The retina whitened to the disc and macular region. The arteries were slightly reduced in calibre and the nerve was decidedly pale. The retina cleared up in a few days, but the optic nerve remained very much blanched and the arteries small. The diminution of vision, which finally settled down to $\frac{22}{200}$, appeared to be uniform. There was no concentric limitation of the visual field and no color-blindness. Buller attributes the sudden blindness in cinchonism to a rapid effusion into the lymph spaces around the nerve, producing an external strangulation, too transient to produce the phenomena of papillitis, but sufficient to produce œdema and blanching of the retina, and a permanent impediment to the blood-carrying capacity of the central arteries.

The dose of quinine sufficient to produce blindness is very indeterminate and largely depends upon idiosyncrasy. H. C. Wood has seen complete temporary blindness following the ingestion of 12 grs. Nearly always, however, the doses must be very large. Briquet thought that troubles of vision did not occur ordinarily until, for several days, doses of 1.5–2 grams (23–30 grs.), or for a single day doses of 3–4 grams (45–60 grs.), had been given. On the other hand, enormous doses sometimes fail to affect vision, though blindness always results when the dose has been lethal. Taussig[46] mentioned a dose of 1 oz. of sulphate of quinine given to a soldier suffering from ague. The only results were complete deafness and a kind of stupor, followed by recovery. Bryce[47] saw a child 2 years old, to whom 12 grs. of quinine were given daily for four or five days. Great prostration resulted, with unilateral paraplegia, great oppression, pallid, cool and clammy skin, but no blindness. Barlow tells of a lady with severe congestive fever who took 40 grs. of sulphate of quinine every two hours for ten doses, or 400 grs. within twenty hours, without suffering from any injurious effects of the quinine, and who made a good recovery. Without doubt immense doses of quinine are frequently taken without disastrous consequences and, while blindness may be always expected in case of lethal poisoning, it is impossible to fix within definite limits the non-lethal doses that may be expected to induce it. It unquestionably largely depends upon idiosyncrasy, and although it hardly ever develops except after the ingestion of large quantities of the drug, and even then with the greatest absolute rarity, the results are so terrible, that even the remote possibility of its occurrence should have influence in placing some check upon the lavishness with which quinine is but too often used in the treatment of disease.

[46] Med. Times, April 23, 1864.
[47] Medical Herald, Vol. iv, p. 441.

QUININE DEAFNESS.

While *tinnitus aurium* and temporary diminution of the sense of hearing are the earliest and most characteristic symptoms of cinchonism, it is not a little remarkable that permanent alteration of the organs of hearing is very uncommon. So far as I have been able to ascertain, permanent complete deafness from quinine has never been recorded; indeed, complete temporary deafness is exceedingly rare. Briquet[48] saw but two cases. Giacomini and Guersant[49] relate one case in which, after a single dose of 12 grams (180 grs.), there was complete deafness which only disappeared after several days, and another case, after taking 41 grams (615 grs.), in which hearing was restored very slowly. Records of incomplete temporary deafness from quinine are, of course, common enough, the symptom belongs to the ordinary pharmacology of quinine, but complete temporary deafness without concurrent amaurosis has but the scantiest authentic record. Joseph Williams[50] has noted such cases, in one of which hearing only began to return after three weeks and was never entirely restored. The patient was able to hear only those who addressed her in a very loud tone. Although there is a widely prevalent popular impression that quinine exerts a damaging influence upon the auditory apparatus, there is a singular dearth of definite proof that this action may be permanent. Most of those who prescribe quinine freely and in full doses are ready to declare that they have never witnessed such results, although every one admits that the drug most readily temporarily increases the difficulty of hearing of those who are already partially deaf. In a number of the cases of quinine amaurosis, however, the accompanying deafness never entirely disappeared, and popular opinion has received important confirmation in the declaration of a number of most competent authorities that quinine may be the cause of permanent aural defect; such writers, for example, as Roosa, Burnett, J. Orne Greene, Kirchner and others have so expressed themselves. Graefe, Hammond and Roosa early declared that hyperæmia of the auditory apparatus followed the ingestion of quinine. Roosa found that there was decided congestion of the blood-vessels which run along the *manubrium* in the *membrana tympani*. These vessels are intimately

[48] Op. cit., p. 140.
[49] Dictionaire de Méd., 2me edition. Art. Quinine, p. 567.
[50] Lancet, i, 1840, p. 639.

connected with those of the middle ear. The blood-vessels of the tympanum are also in direct communication with the circulation within the labyrinth. From the close connection between the vascular systems of the tympanum, the membrana tympani and the labyrinth, and from the appearance of congestion as the direct result of 10 and 15 gr. doses of quinine, we have evidence that the effect upon the ear is congestive rather than anæmic; but as the congestion visible is slight and disproportionate to the intensity of the tinnitus aurium, it seems reasonable to conclude that the congestion of the greater cavities is greater (J. Orne Greene).[51] In a most instructive article upon the same subject, Burnett[52] states that if to a healthy man from 15 to 120 grs. of quinine be given, a watch will only be heard at contact and bone conduction is abrogated. The membrana tympani assumes a hazy look, due to the intense congestion of the mucous surface of the drum membrane. The participation of the labyrinth is shown by inhibition of bone conduction and by inability to hear high notes by aerial conduction, or by a very limited power of perceiving them. This impaired power is due to the congestion in the lower whorl of the cochlea, where the nerve fibres for hearing for high tones are supposed to be. Important confirmation from experiment has been supplied by Kirchner.[53]. Upon examining the labyrinth of a cat after large doses of quinine, Kirchner found hyperæmia and excessive extravasation of red and white blood cells extending from the *vas spirale* over parts of the *sulcus spiralis*, the auditory pillars, Corte's arches and the *membrana basilaris*. In three of ten rabbits he found, under similar conditions, extravasations extending from the semicircular canals to the vessels in the surrounding osseous substance in the temporal bone (Burnett). Greene, Roosa and Burnett are all convinced that great injury to the hearing is often produced by the drug, and in occasional cases the changes are no longer limited to simple hyperæmia, but otitis has been produced by it (Roosa,[54] Burnett).

Very singularly, the effects of quinine upon the sight and hearing appear to be attributable to two quite opposite conditions. Upon the ear the action is decidedly hyperæmic, upon the eye it is even more pronouncedly anæmic. How these changes are induced is quite unknown. It is generally assumed that they depend upon influences exerted through the vaso-motor centre. Regarding the ear, Kirchner concludes that the cause of the pathological changes after quinine is probably a vaso-motor disturbance whereby not only transitory alterations are excited, but also a paralysis of the vessels with congestion and exudation in the different parts of the organs of hearing. With this condition of the aural blood-vessels and the narrow contraction of the retinal blood-vessels concurring, it seems difficult to refer the alterations to a central vaso-motor lesion. It is altogether more probable that the vaso-motor effects are local. It should be noted that the blindness is not necessarily associated with deafness. In some instances (few indeed), amaurosis has been present with little or no aural disturbance (Roosa, Voorhies).

GENERAL POISONING FROM CINCHONA PREPARATIONS.

Doses of cinchona alkaloids that are sufficient to produce complete deafness and blindness are often the cause of general symptoms of an alarming, even dangerous character. Bochefontaine,[55] arguing from results obtained in animals, concludes that in order to place the life of a man in jeopardy, 10 grams (150 grs.) of sulphate of quinine must be injected under the skin, or 16 grams (240 grs.) of sulphate of cinchonine administered in the same manner. He estimates the lethal dose by the stomach to be 35 grams (525 grs.) of quinine, or 50 grams (750 grs.) of cinchonine. These doses, however, exceed the amounts that have been known to produce death. I have already detailed a case of Baldwin's, where a negro girl died after convulsions produced by 20 grs. of sulphate of quinine given in forty-eight hours. This dose appears almost too small to be followed by such results, but the symptoms (described in 1847) tally so closely with those of more recent observations, that Baldwin's claim would seem to be well founded. Briquet reports two fatal cases, in one of which death followed the administration of 100 grs. in two days. The other patient (from Recamier) took nearly 120 grs. in doses of 5 grs. repeated every hour. Nevertheless it is pretty safe to assert that in order to produce death from quinine, enormous doses are necessary. Voorhies'[56] patient, it will be remembered, took an ounce within a few hours, and an equal amount was given each day for two days by stomach and rectum. She was in a critical condition for some hours, but recovered. The soldier who took one ounce at once with but unimportant consequences has also been referred to. It is certain, however, that doses that may prove dangerous are frequently prescribed and taken with reckless freedom. The practice has elicited protests from a number of writers. Dr. A. A. Smith[57] has written a vigorous paper upon this subject. J. Williston Wright relates several cases illustrative of the peril following excessive doses. One of his patients was a child 10 years old who took within twelve hours 25 grs. of sulphate of quinine by the mouth and 25 grs. by the rectum. Within two hours after

51 Boston Med. and Surg. Jour., Vol. cviii, p. 220.
52 Polyclinic, Vol. iii, 1885-86, p. 54.
53 Berliner Klin. Wochenschr., No. 49, 1881, p. 727.
54 Treatise on the Ear, third ed., p. 155.
55 Comptes rendus des Séances de l'Academie des Sciences, No. 96, 1883, p. 503.
56 New York Medical Journal, Vol. xxxix, 1884, p. 115.
57 New York Medical Journal, Vol. xxxix, 1884, p. 116.

the last dose, the child fell into a state of collapse, with a temperature of 93.9° F., a pulse of 60, very weak and intermittent, a respiration of 32, shallow and gasping. The face and lips were cyanosed, the skin cool and moist. Recovery followed. Even small doses may produce in some predisposed individuals symptoms that excite alarm; and no reference is made here to the distressing and violent seizures following even the smallest doses in some persons, in whom severe acute gastric catarrh, extensive cutaneous eruptions, active circulatory disturbances are observed. Lente,[58] for example, records a case where two small doses of calisaya elixir threw the patient, a woman, into a comatose condition. She had cold extremities, a hot head and symptoms of cerebral congestion. Lente relates other similar cases. A number of the cases detailed in the foregoing pages also presented alarming general symptoms.

In more severe cases the patients may pass into a condition bordering upon collapse. There will be extreme prostration, with or without loss of consciousness, or coma, lowered temperature, gradual weakening of the pulse and respiration, and chilling of the entire surface, copious cold sweating, deafness, dilatation and immobility of pupils, blindness, lividity or cyanosis of the countenance. Convulsions have occurred in a goodly number of reported cases. Both of Baldwin's cases had them; one, however, without losing consciousness. In this man, they began with a jerking of the whole body and great restlessness, anxiety and alarm. The convulsive movements came on every ten or twelve minutes, sometimes of the whole body, at other times of the arms. Briquet quotes Talbot as having seen convulsions follow very large doses. Pereira[59] records among cases of typhoid fever treated with 4 grams (60 grains) of sulphate of quinine daily, four who developed epileptiform fits. Gruening's patient, who took 80 grains in 36 hours, had convulsions shortly after the last dose. These were characterized by twitchings of the facial muscles and jerking of the upper and lower extremities. Although the patient denied all knowledge of the fits, Gruening thought that she did not lose consciousness during them. Similar extreme action has been noted by Ghose.[60] The patient was a Hindu female, 35 years old, who took, for remittent fever, 20 grains of quinine in four pills, one hourly. After the third pill she became insensible and convulsive movements of the limbs set in. After two hours she remained insensible, lying on her face with both hands clinched. Her eyeballs were turned upward and her pupils dilated. The muscles of mastication, of the arms, hands, and lower extremities in a condition of tonic contraction. The reflexes of the soles, palms, and even of the conjunctivæ, were abolished. The woman had never been hysterical.

Fatal cinchonism has very rarely been observed. Several such have already been referred to; within a few years two very interesting accounts have been published, the one, a case of poisoning by sulphate of cinchonidine (Winters), the other by sulphate of quinine (Lamb). Winters'[61] patient was a cachectic boy, 5 years old, who had remittent fever. By mistake he was given 32 grains of sulphate of cinchonidine every second hour until 128 grains had been taken within six hours. None was rejected. Winters saw him one hour after the last dose. He had then had three general convulsions of an irregular character. The temperature was 94.6° F., the pulse almost imperceptible at the wrist. By auscultation the cardiac pulsations were found to be 74. The skin and mucous surfaces appeared utterly bloodless. The pupils were dilated. The child was semiconscious. The condition of sight and hearing was not noted. Despite stimulants, heat and friction, the boy gradually sank and died, apparently of exhaustion, eight hours after Winters first saw him after the poisoning. The necropsy revealed engorgement of the cerebral sinuses with dark, slightly coagulated blood. The brain was anæmic throughout. The left heart was contracted, but not firmly, and was empty. The right heart contained a small quantity of dark colored blood. Lamb's[62] patient was also a little boy. He was 3 years old. He had found a package of eighteen 3-grain sulphate of quinine pills and had swallowed them all. After a few hours he died, apparently of syncope. At the necropsy several of the pills were found undissolved, and Lamb estimated the amount actually absorbed to be 42 grains. Curiously, the cardiac conditions post-mortem were exactly unlike those found in Winters' case. The heart was relaxed; the right cavities were empty, the left cavities contained a little fluid blood. It was also discovered that the child had a mild but unsuspected typhoid fever.

In the cases in which convulsions occurred it is not clear that they were dependent upon the "nervous perturbation" that is so often seen in cinchonism. Comparative experiments upon animals show, however, pretty definitely that while quinine cannot be considered a convulsivant in the same sense in which strychnine is held, convulsive movements of an irregular character are pretty constantly provoked. As long ago as 1847 Baldwin found, after giving large doses to dogs, at first great restlessness, then vomiting, and occasionally purging. Next followed tremulous movements with a constant motion of the head, resembling that of paralysis

[58] New York Med. Record. Vol. xiv., 1878, p. 388.
[59] Emploi du sulphate du quinquina a haute dose. Thése, Paris, 1841.
[60] Indian Medical Gazette, Vol. ii, 1881, p. 337.
[61] New York Medical Journal, Vol. xxxix.
[62] New York Medical Journal, Vol. xxxix, p. 549.

agitans. There was loss of consciousness, followed by complete paralysis of the hind extremities. In every case, where the doses were sufficient to produce death, except one, convulsions were observed. Bochefontaine's researches led him to the conclusion that both cinchonine and quinine are convulsivant, the latter less so than the former. This author, with Sée,[63] attributes a similar physiological action to cinchonidine, and quotes Chirone and Curci[64] as entertaining similar views. According to Soulier[65] the first effect of quinine is to produce an acceleration of the pulse, then, after a variable time, according to dose, to slow it. In warm blooded animals the first phenomena observed are lateral movements of the head, accompanied by general enfeeblement and incoördination of movements. The enfeeblement becomes pronounced, and vomiting occurs. The animal sinks down upon its thorax and neck and then, but only in a certain number of cases, epileptiform and even tetanic spasms occur. These, however, may be only secondary. Brunton,[66] who has seen epileptic convulsions apparently caused by medicinal doses of quinine, acting through a stimulation of the motor centres, explains that in fatal poisoning the animal dies in convulsions consequent on stimulation of the nerve-centres by the venous condition of the blood produced by failure of the respiration. The loss of voluntary and then of reflex movement indicates that quinine acts upon the nerve-centres in gradually abolishing their function. In the fatal poisonings from quinine, the vagus nerve becomes paralyzed and death occurs through failure of respiration, and only occurs through cardiac paralysis if the drug be injected into the blood in large quantities. Douvreleur's experiments with animals with sulphate of cinchonidine show that after lethal doses the heart slows and the blood-pressure progressively diminishes and reflex movements gradually grow feeble and are finally abolished, at the same time with the respiratory movements.

While it may be freely admitted that the dangers of lethal poisoning by quinine are very remote, it is certain that not sufficient attention has been given to some of the graver consequences that may follow its administration. In addition to the blindness and deafness which we have already considered, might probably be added abortion as a possible result of cinchonism. As, however, the oxytonic action of quinine has not as yet been determined satisfactorily, this aspect of the question will not be introduced at the present time.

DR. LYSTER, of Detroit, remarked regarding the use of quinine in large doses, that he quite agreed with the doctor preceding him that only such portion of the dose as was required to neutralize the malarial intoxication was appropriated; any excess of dose was eliminated from the system usually without any markedly injurious effect. He believed that quinine was strongly antiseptic, and that the combination of alkalies and mercurials on account of the ptomaines and leucomaines existing where the quality of the bile was so inferior as it generally is in cases of malaria, then we have passive congestion of the liver and a lessened alkalinity of the bile. The conditions are quite similar to that observed in cirrhosis of the liver. The very large doses frequently repeated will not be required if such other valuable antiseptics be exhibited at the same time. The hypodermic use of the quinine should be made in suspected cases of the congestive or malignant variety in regions where such cases were met with.

DR. W. J. SCOTT said that the doses of quinine should be in size suitable to the necessity for its administration. He thought excessive dosing of quinine may do harm.

DR. DE SCHWEINITZ, of Philadelphia, had a case under his care in which amaurosis was caused by 12 grains, and lasted several hours. There is a case recorded by a French writer of a soldier who took over an ounce. Safety depends upon the precipitation in the intestine by alkaline juices of an acid salt.

63 Comptes rendus des Séances de l'Academie des Sciences, No. 96, 1883, p. 1081

64 Rev. des Sciences Med., Vol. xviii, p. 47.

65 Thèse de Paris, 1883, p. 53.

66 Pharmacology, Therapeutics and Materia Medica, 3d American Edition, p. 947.

SUSPENSION AND EXTENSION IN THE TREATMENT OF SCIATICA. A NEW USE FOR AN OLD INSTRUMENT.

Read in the Section of Surgery and Anatomy at the Fortieth Annual Meeting of the American Medical Association held at Newport, R. I., June 25, 1889.

BY CHARLES C. HUNT, M.D.,
OF DIXON, ILL.

So unsatisfactory have been the results of the various methods of treatment of sciatica that any means whereby this painful disease may be cured, or even palliated, will be welcomed by professional men and laity alike. It has been my good fortune, in the past five years, to be able to give immediate and permanent relief in many cases of sciatica, especially of the chronic type, that had failed to obtain relief by any other means than those I am about to describe. The method is simple and, in my hands, has proved in the highest degree effective. I can better illustrate by the recitation of a few typical cases.

Mrs. K., a young married woman, no children, had pain along the line of the left sciatic nerve for over two years. It was so severe at times as to confine her to bed for several days, and at no time for many months had she been

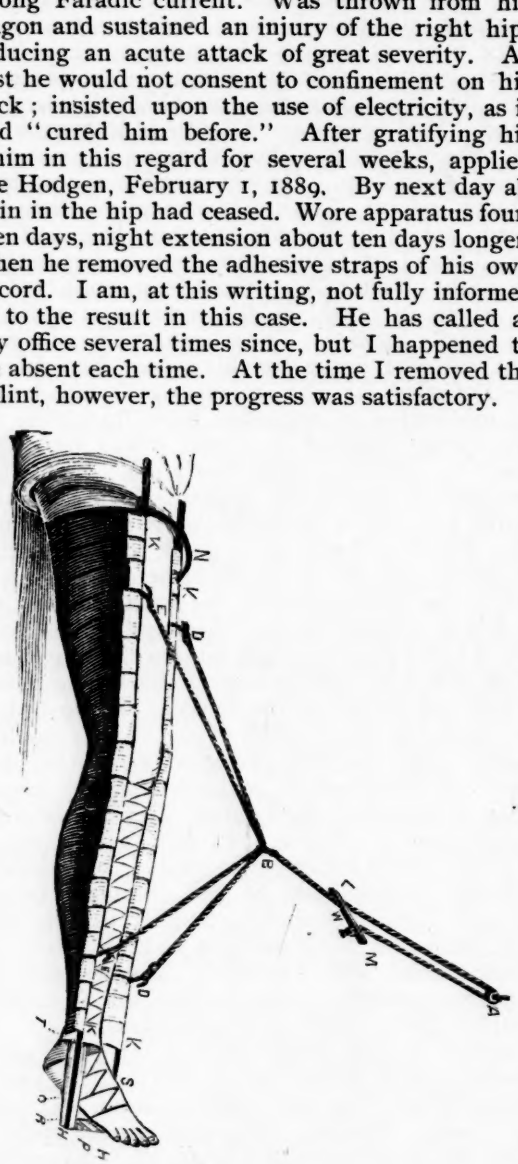
able to perform her ordinary household duties without great suffering. I saw her as an office patient in May, 1884. Her general health was considerably out of repair, owing to chronic endocervicitis, right lateral retroversion of uterus, chronic sciatica of the left side, and consequent anæmia. I was inclined to the view that the uterine displacement and cervicitis, with their attendant anæmia, stood in direct causative relation to the sciatica, and I accordingly placed her on ferruginous tonics and resorted to such local measures as the nature of the uterine disorders indicated. After several months her general health was much improved; the uterine troubles had disappeared, but the sciatica continued with little or no material abatement. I then subjected her for another two months to the usual routine treatment for chronic sciatica, with no better success. Prior to my seeing her she had been for about eighteen months under the care of a very able physician, from whose treatment she had derived but little benefit. Early in November, 1884, I was visiting another patient at this lady's house. She informed me, on this occasion, that the pain in her hip was worse, that her increased cares had kept her much upon her feet, and she had now become almost helpless from the paroxysms of pain, which tortured her during the day and deprived her of her rest at night. Almost in despair I said to her: "If you will lie in bed two or three weeks and submit to such treatment as I think proper, I may succeed in curing you. I am not sure how matters will turn out. I have never tried this before, nor do I know of anyone else who has. In any event, it will do you no harm." She was glad to submit to any reasonable means that offered the least promise of relief. I had it in my mind to see what could be obtained by rest and extension, and as I had a Hodgen's splint at hand, it occurred to me that these, together with suspension, could be very readily gained by means of this most excellent apparatus. I accordingly adjusted this splint in the usual manner. In a few hours the pain had entirely ceased. She enjoyed the first good night's rest in over two years. At the end of a fortnight I removed the splint and permitted her to get up; but as a precautionary measure I left the adhesive straps remaining, so that at night, or in case of return of pain, she could attach a ten or twelve-pound weight to the limb by means of a cord passing over a pulley at foot of bed, in same manner as we ordinarily make extension in fractures of the lower extremities. This she kept on for three weeks longer, attaching the weight at night. The result was all that could be desired; the pain never returned after the first day. She was discharged cured at end of five weeks. I had the privilege of examining patient quite recently. She informed me she had been perfectly well of the sciatica ever since the splint was removed, nearly five years ago.

Henry C. M., a young unmarried man of very irregular habits. Had been a debauchee and lain out nights in a state of drunken stupefaction. Some two years prior to my seeing him, had contracted a severe form of sciatica. Upon examining him, stripped, I found marked atrophy of muscles of left thigh and leg, mobility of the limb much lessened, extreme tenderness on pressure over line of sciatic nerve, general health tolerably good. Had been under all sorts of treatment by all sorts of persons without deriving any material benefit therefrom. He was making a desperate effort to reform. His circumstances, he thought, would not admit of confinement in bed, and insisted that I try other means first, in hopes that he might obtain relief without being subjected to so severe an ordeal as the wearing of a splint necessarily implied. The interrupted faradic current, massage, nerve stretching, deep local injections of ether, etc., etc., together with such internal medication as suggested itself from time to time during a period of several weeks, were followed by only temporary alleviation. He finally consented to have splint applied, which was done March 11, 1886, at his home twelve miles distant. The first few hours gave great relief, but the dragging pain during the night became so intolerable that he telegraphed me next morning to visit him without delay. Arriving at his bedside, I found that too much tension was the cause of the difficulty, and as soon as this was lessened to a proper degree by the removal of the bed a few inches in the direction of its foot, the trouble ceased. He wore the apparatus two weeks, and kept up extension at night four weeks more, when he was discharged cured. I examined him about a year afterward, and found that the atrophy had almost entirely disappeared, his sciatica had not returned, and he had obtained perfect use of the limb. Some months after this he felt so jubilant over his restoration to health that he "took a drink with a friend." This was the initial step towards a grand spree, which lasted until his death, some weeks afterwards.

Mrs. S., a large, fleshy woman, 55 years old, always in good health except for the last year, during which she had suffered from sciatica, right side. October, 1885, applied the splint, which was removed after a fortnight. Extension by means of weight and pulley continued two weeks longer, at the end of which time patient was discharged cured.

W. C., blacksmith, sciatica left side, two and a half years' duration. Dipsomaniac. Acute attack, superimposed upon the chronic, caused by injury while shoeing a horse. Applied splint at once. Relief was immediate. Wore apparatus thirteen days, night extension two weeks. Discharged cured. I examined this case last week, that is, five months after removal of splint. He assured me he was entirely well.

Mr. S. Y. had been a severe sufferer from sciatica of right leg for over ten years. For last two years has been comparatively free from it, owing, as he thought, to three applications of a strong Faradic current. Was thrown from his wagon and sustained an injury of the right hip, inducing an acute attack of great severity. At first he would not consent to confinement on his back; insisted upon the use of electricity, as it had "cured him before." After gratifying his whim in this regard for several weeks, applied the Hodgen, February 1, 1889. By next day all pain in the hip had ceased. Wore apparatus fourteen days, night extension about ten days longer, when he removed the adhesive straps of his own accord. I am, at this writing, not fully informed as to the result in this case. He has called at my office several times since, but I happened to be absent each time. At the time I removed the splint, however, the progress was satisfactory.



EXPLANATION OF CUT.

K K, K K, the two arms of splint. E E, D D, sliding hooks on arms to which lateral cords E B E and D B D are attached. H H, cross-bar of splint, to which block covered by lateral straps is fastened by strap P. N, wire bail. A B, suspending rope passing over hook or pulley A, and returning is attached to itself by wooden "check" W. O and S, lower ends of arms. R, adhesive strap seen emerging from underneath roller at T and passing over block H H, is reflected upon leg on other side.

But to recite further would be only recapitulation. These cases are not selected ones. They are picked up at random from a list extending over a period of five years. No medicine of any kind was administered to any of these cases during the treatment by suspension and extension, except an occasional laxative or cathartic. No opiates were required. In all, the relief was marked and decisive within from one to six hours after the proper adjustment of the apparatus. Recovery was completed in from two to six weeks, except, possibly, in the last one, the history of which I have just narrated as far as known.[1]

The etiology, pathology, diagnosis and general treatment of this morbid condition do not fall within the scope and purpose of this paper. Doubtless these departments will have been exhaustively considered in the paper to be presented to this Section by Dr. Carpenter, of Kentucky. My purpose has been solely to present a few clinical facts which are new and interesting, to me at least, at the same time cherishing the hope that they may prove no less so to those to whom I have the honor to relate them. I will only add, in this connection, that from the first I was surprised and gratified at the results obtained by this simple procedure. Rest, suspension and extension are, it seems to me, the three cardinal points in the treatment of this disease; and after an experience of five years I have nothing to add to, or substitute for, the Hodgen splint, as the most feasible means whereby these objects may be fully secured.

The apparatus was devised by the late Prof. John P. Hodgen, of St. Louis, during the War of the Rebellion. Its object was to maintain apposition of the fragments in gunshot fractures of the thigh while the wounds were being dressed. Its use in simple fractures has never been general. It consists of a one-fourth inch iron rod, bent in two places at right angles, so as to form two nearly parallel arms united by a transverse bar (see "HH" in figure), and of sufficient length to reach from the hip-joint to about four inches below the sole of the foot. These arms are slightly bent at the knee, and the upper ends are kept apart by a heavy wire bail (N). Five or six strips of heavy muslin roller, from three to five inches in width, are passed from arm to arm underneath the limb. These are fastened by means of safety pins along the outer arm of the splint, from the bail to near the ankle, so as to allow the limb to rest upon them, as in a cradle. Care should be taken to see that these strips press equally all along the under surface of the limb. Two strips of Maw's mole-skin plaster are adjusted to the leg, as is usual for extension by means of weight and pulley; these straps are separated below the foot by the usual block, which latter is now made fast to the cross bar of the splint by means of a strong piece of adhesive strap at the point "P." From the sliding hooks "EE" and

[1] Since preparing this paper S. Y. came in (June 20th) and reported himself entirely well.

"DD" are two heavy cords, which are united at "B" by a three-sixteenths inch rope, which passes up over a hook in the ceiling and back upon itself, where it is attached by means of the well-known device represented in the figure at "LM." The limb is raised or lowered by means of the wooden check "W." The suspending rope, "AB," should form, with a horizontal line, an angle of about sixty degrees. To prevent the patient from sliding down in bed, the foot of the bed should be elevated about four inches.

The late Prof. Frank H. Hamilton, in his justly celebrated work on "Fractures and Dislocations," declares, in regard to Hodgen's and all other suspending apparatus, that "whatever other excellences they may possess, this (extension) does not belong to them." How this distinguished author could have incorporated such a palpable error in a work so carefully written, I shall not attempt to explain. That this "suspending apparatus," when properly adjusted, *does* produce extension, even to a degree greater than one can bear, I have seen demonstrated over and over again. In a case of oblique fracture of the thigh of a very muscular man, with two and a half inches shortening, I sat by the bedside and witnessed extension, by this means alone, of sufficient power, without any anæsthetic, to bring the fragments into place. Indeed, there is danger of obtaining too much extension, as I have already related. This unpleasant circumstance may be obviated by instructing the patient, in case the tension becomes uncomfortable, to slide a few inches toward the foot of the bed, or have the bed drawn a few inches in the direction of its foot.

In cases of adults, especially of those beyond the average length, the bed should be seven feet long and without any foot-board; otherwise the lower end of the splint will press against the foot-board and extension will cease.

The apparatus can be made in an hour by any ordinary blacksmith. The wearing of it produces no discomfort. The calls of nature can be attended to with the least possible disturbance. Patient may even sit in a reclining chair, while his bed is being put in order, and it will do no harm if the suspending rope is unhooked for an hour or so at a time, while the bedding is being changed, the patient, in the meantime, sitting in a chair with limb (in splint) resting upon another chair. It is well, however, not to remove tension for this purpose until after one or two days.

While this method may not prove absolutely successful in all cases and under all possible conditions, yet it has, in my hands, been followed by such uniformly good results that I feel warranted in commending it to the favorable consideration of all, and especially of those who, like myself, have failed to obtain satisfactory results by other means.

MEDICAL PROGRESS.

SURGICAL TUBERCULOSIS.—In a series of lectures recently delivered by MR. HOWARD MARSH at the Royal College of Surgeons of England, he gives the results of his own experience in the treatment of this disease:

As regards the general group of tubercular diseases met with in surgery, when they are detected early and are adequately treated by prolonged rest, in not more than 10 per cent. do they develop to any formidable degree. It is a rule with but few exceptions in the lecturer's experience that when, for example, a knee or an elbow, which is the seat of tubercular disease of less than three months' duration, is enclosed in well-fitted splints and is kept at rest, the case gives no further real trouble, and improvement, though slow, goes on until the joint is apparently free from disease, while after a longer period of rest complete recovery is secured. The period required for treatment in early cases does not, as a rule, exceed twelve or eighteen months. In more advanced cases the same treatment will lead to good repair. The treatment adapted for hip disease has been that of prolonged rest, with weight extension. In cases of suppuration all abscesses have been opened as soon as detected. An incision from an inch to an inch and a half in length is made, matter is evacuated by gentle pressure, and a small drainage tube, just long enough to enter the cavity, is used for two or three days and antiseptic dressings are applied. In many instances the wound closes in two or three weeks, sometimes sooner; in others it becomes a sinus which discharges for a month or six weeks and then heals; in others still, suppuration remains free for several weeks, or even longer, and further openings have to be made; but at length, in a large majority of cases, the wound heals and no further suppuration, except in a very few cases, takes place.

Mr. Marsh proceeds to give an analysis of seventy-six cases which had been operated upon in the Alexandria Hospital, the patients having been summoned for inspection a year and upwards after operation. Of these seventy-six patients thirty-seven were cases which had suppurated and thirty-nine cases which had not suppurated. Among the thirty-seven there were two cases of double disease, and in the thirty-nine there was one double case. Of the thirty-seven suppuration cases only four still had sinuses, and these were all small and superficial. The general results were as follows: One was a perfect recovery, six were excellent, seventeen were good, thirteen were moderate.

Amount of shortening: Three no shortening; 17 less than an inch; 12 between 1 and 2 inches; 3 more than 2 inches.

Movement: One perfect; 10 free; 7 slight; 18 fixed; 1 not observed.

Walking: Two perfect; 22 well; 13 indifferently.

Of the 39 non-suppurating cases 9 were perfect recoveries, 9 excellent, 12 good, 9 moderate.

Shortening: Eight none; 19 less than 1 inch; 11 more than 1 inch.

Movement: Nine perfect; 10 free; 10 slight; 10 fixed.

Walking: Twelve perfect; 20 well; 6 indifferently; 1 not noted.

The lecturer believes his figures of results obtained to be typical and in marked contrast to those obtained after the operation of excision, the mortality in the former amounting to about 10 per cent., while at a moderate estimate the mortality of the latter exceeded 20 per cent. With these satisfactory results in view he feels like advocating conservatism in treatment, and the more so because the main defect of excision, after all, will lie in the ultimate result, as regards the usefulness of the limb. Thus, in children the immediate result of excision of the knee may be all that could be desired, while the ultimate result is unsatisfactory in that deformity ensues and the functions of the limb are materially interfered with.—*Brit. Med. Journal*, Aug. 3, 1889.

SECONDARY SYPHILIDES OF THE VAGINA.—M. BALZER (Congrès Internat. de Der. et de Syphil., Paris) dwells upon the importance of careful inspection of the vagina for the discovery of syphilides. For this purpose the examination should be preceded by vaginal irrigation. The vaginal ampulla is their favorite seat. The papular form is the more common, and it may be isolated or associated with the papules of the cervix. The eroded form is also met with in the ampulla in the form of macules or simple striæ with a reddish or whitish surface. Both forms usually heal quickly. When there are cervical plaques vaginal syphilides sometimes develop immediately upon contact, notably in cases of uterine anteversion. In the case of a prostitute who had had syphilis for more than four years there was a large mucous plaque of the vagina which developed in this manner, but which could only be seen after replacement of the uterus. The cervix was hypertrophied and ulcerated, but did not present a distinctively syphilitic appearance. It is reasonable to suppose that plaques may develop in syphilitic patients upon mere contact with a cervix that is the seat of a chronic ulceration. The papular or eroded syphilides are easily recognized and are scarcely to be confused with certain flattened vegetations or soft papular chancres of the vagina.

In the middle portion of the vagina syphilides are less frequent than in the ampulla. In one case there were ulcerations, apparently deep, which furrowed the vagina throughout the greater part of its extent, but when the vaginal folds were carefully stretched out it was found that in reality the ulcerations were only superficial. In another case there was an ulcerous syphilide. The patient, who admitted having infected a person, was carefully examined a number of times with negative results. Finally, after an extremely careful examination, two ulcers were found midway in the vagina on the right side; they were concealed in folds of the mucous membrane, were circumscribed, with indurated borders, and bled readily. A mixed tonic treatment was ordered, but the ulcers healed very slowly. It is almost unnecessary to insist upon the gravity of vaginal syphilides in view of the contagious character of syphilis, but it is all the more important to search from time to time for manifestations of the disease in other parts of the body.—*La Semaine Méd.*, August 28, 1889.

CASES OF ENTERO-VESICAL AND ENTERO-TUBAL FISTULÆ.—F. P. KUTHE (*Weekblad v. h. Ned. tid. v. Geneeskunde*, 1889, No. 21), reports the case of a man 25 years old, who had long suffered from diarrhœa. All at once he noticed the escape of gas from the penis during micturition, at the same time fæcal matter appeared in the urine. The communication was probably with the ileum, since opiates did not prevent the appearance in the bladder of the fluid contents of the intestine, although they produced constipation. Colotomy was, therefore, not available. Direct operative closure of the communication appeared to be the sole remedy. The patient being syphilitic, an antisyphilitic treatment was tried, and, contrary to all expectations, was crowned with success. The following year the same condition reappeared, but yielded to treatment of mercury and iodide of potassium, the patient remaining cured at the end of seven years.

In the case of entero-tubal fistula, the first indication was the discharge of gases, and an irritating fluid from the vagina. The diagnosis was confirmed by the introduction of vaginal tampons moistened with salts of lead, the reaction with sulphuretted hydrogen being conclusive. The daily introduction of iodoform bacilli led to a moderate improvement.—*Cent. für Klin. Med.*, 1889, No. 34.

STENOSIS OF THE TRACHEA, FOLLOWING TRACHEOTOMY.—(*Virchow's Archiv.*, B. cxvi, H. 1.) A child of 3½ years that had been subjected, two years previously, to tracheotomy, was obliged to continue the use of the canula on account of suffocative attacks. Finally attacks of dyspnœa appeared during expiration, even with the canula *in situ*, and during such an attack the child died. In such cases of tracheal stenosis as this the chief symptom is the appearance of suffocation whenever an attempt is made to withdraw

the canula. The reporter, having in a former report given an account of the various forms of tracheal stenosis upon a pathological-anatomical basis, desires to deal at present with those changes which are directly caused by tracheotomy and the canula. In spite of properly directed incisions and suitably fitting canulæ, granulations form in the upper and lower angles of the wound and, later on, form an obstacle to the removal of the canula. Important changes in the tracheal cartilage and walls may be the result of too large or too small incisions, or deviations from the median line; or, aside from these causes, may be the result of unsuitable canulæ. The reporter has studied these relations in preparations of the larynx and trachea taken from children upon which the operation has been performed, and has found that, to a greater or less extent, the cartilage becomes necrotic or assumes a false attitude. When the necrosed cartilage is removed, the defect heals by granulation and, later, by cicatricial tissue. Stenosis of the trachea is relatively more frequent outside of the hospitals, where the operation has often to be performed in the midst of trying surroundings. In these instances particularly he advises a careful control during the first few days of the anatomical relations as a prophylaxis against the production of stenosis.—*Cent. f. Klin. Med.*, 1889, No. 34.

The Use of Pessaries.—Dr. J. B. W. Nowlin, of Nashville, Tenn. (*Southern Practitioner*), sums up his objections to the use of pessaries in the following terms:

1. They can only act as palliatives. If too small they are expelled or cannot sustain the womb, and if too large they exert injurious pressure.

2. They keep up a continual irritation in the vagina, acting as a foreign substance, producing mucous, purulent and leucorrhœal discharges, thus laying the foundation for fungus or cancerous diseases.

3. Many forms of these instruments are liable to produce septic results.

4. They produce undue and permanent dilatation of the vaginal walls by destroying the tonicity of the parts.

5. If not frequently removed, they become filthy and irritating.

6. They are liable to cause irritation of the bladder and constipation.

7. Their application is often left to the laity.

8. By the obstruction which they offer to the circulation, they produce engorgement, and it may be ulceration of the surrounding parts, extending even to the production of a vesico-vaginal or rectal fistula.

Gonorrhœal Arthritis.—Dr. A. Myrtle, of Harrogate, Eng., reports two cases of this character. In both there were the ordinary symptoms of rheumatic arthritis of very severe degree, and in addition to this a remarkable wasting of the muscles of the thighs and legs, which was both sudden and persistent, confirming the views of some authorities that certain centers of the cord and brain are partially paralyzed by the reflex sympathy existing between them and the inflamed urethra; the wasting of the muscles in the limb not affected with the special joint mischief is decidedly in favor of that opinion. In the two cases reported, the treatment was eminently satisfactory and was as follows: Cotton, wool and flannel applied to the joints; two 12-ounce tumblers of old sulphur water an hour before breakfast as an aperient, and an 8-ounce glass of the mild sulphur water at mid-day. Later passive motion and slight massage. Hot sulphur douche at the baths followed by rubbing with camphorated oil.—*Brit. Med. Journal*, Aug. 3, 1889.

Ovariotomy in Rupture of a Multilocular Cyst.—M. Polaillon reports (*La Semaine Méd.*) the case of a woman in whom a diagnosis of ovarian cyst had been made and who, while raising herself in bed after taking a purgative, experienced a crackling sensation in the abdomen accompanied by severe pain. During the three following days symptoms of peritonitis appeared, with tympanites, vomiting and severe pain. On the third day laparotomy was performed and a multilocular cyst weighing 3 kilogr. removed. At the upper portion of the tumor one of the pockets, which contained a blackish-looking fluid, was found ruptured. There were well-marked appearances of peritonitis. Fibrinous membranes were removed and the toilette of the peritoneum made with a warm antiseptic solution. The patient rallied well from the operation and bids fair to make a good recovery. M. Polaillon remarks that in rupture of cysts the effusion, if serous, may be reabsorbed; if gelatinous it is not reabsorbed and the patient is exposed to the dangers of peritonitis; in rupture of a myxosarcomatous cyst he has seen a veritable graft of pathological tissue upon the peritoneum.

Antipyrin.—Antipyrin bids fair to become an universal panacea. Dr. W. F. Wright, of New York, says that he has employed it in migraine, trigeminal neuralgia, ovarian neuralgia, muscular rheumatism, hysteria, and certain spasmodic conditions, in all of which he has found it of distinctive value. He has also obtained excellent effects from its employment in the insomnia of exhausting and irritating diseases, especially in combination with chloral. By French authors it has been described as possessing valuable hæmostatic properties; thus, Hènoque considers that the drug produces a con-

striction of the vessels and the tissues, while coagulating the blood. In epistaxis he uses it in powder, solution, gauze and ointment. Hinkel (*N. Y. Med. Journal*, Oct. 30, 1888) has used a 4 per cent. solution with good effect in cases of hæmorrhage following operations on the nose. He also finds that it exerts a sedative action in cases of sneezing, coryza, etc., while combined with cocaine it increases the topical action of the latter, enabling it to be used with effect in weaker solutions. Carl Lowe (*Ther. Monatshefte*, 1889, 169) has used antipyrin in many cases of whooping-cough occurring in an epidemic, and found it a very valuable agent except in a few cases, in two of which the symptoms seemed to be aggravated by its administration, and in one of which the toxic effects of the drug were manifested.

The *Berliner Klin. Wochenschrift* (No. 17, 1889) reports marked success following its introduction in the treatment of whooping-cough, but also takes occasion to point out the dangers of poisoning from its administration, a cumulative action having been observed in some cases.

SUPRAPUBIC CYSTOTOMY.—MR. H. T. HERRING reports thirty-one cases of this character performed by Sir Henry Thompson, who at the end of 1888 had completed a series of more than 1,000 cases in which he had operated upon the bladder for calculus and for tumors. Of the thirty-one cases of suprapubic cystotomy two were performed by the old method and the remainder by the modification suggested by Garson and first introduced into England by Thompson. The chief points of this modified method were to commence with a fully yet prudently distended rectum, followed by a fair distension of the bladder; a sparing use of the knife; the opening of the bladder by a small incision sufficient to admit the finger, but enabling further enlargement to be made by dilatation only, since after this the opening contracts and stitching is not necessary, and moreover appears to be generally not advisable.

In the first series (two cases by old method) both patients died. In the second series there were eleven cases of tumor of the bladder and eighteen cases of calculus. Of the eleven cases of tumor only one was fatal, and that from pyæmia. Among the eighteen calculus cases there were three deaths, exclusive of one in which death was due to an attack of bronchitis and asthma. The whole of these cases represent the most advanced and the most complicated examples of disease, and were on that account not amenable to lithotrity, or to a perineal section of any kind.

TYPHLITIS CAUSED BY A DATE STONE.—DR. E. G. ARCHER reports a case of a farmer, aged 35, who, when first seen on June 26th, was suffering from symptoms of intestinal obstruction. For some time he had experienced constant uneasiness in the bowels, for which he had taken aperients, resulting the day before in copious evacuations. The treatment consisted in opiates and hot applications, followed by castor oil. On June 28th a large accumulation of fæces was passed, giving great relief to all the symptoms. In this discharge a date stone was found. Improvement was only transitory and an abscess formed, bursting into the bowel on July 5th, after which the patient made a rapid recovery. The patient had not eaten dates since the preceding Christmas, and accordingly the date stone must have been in the bowels for at least six months.—*Brit. Med. Journal*, Aug. 3, 1889.

SPONTANEOUS VERSION.—DR. T. W. EVANS, of Richmondale, Ohio, reports a case with the following notable particulars: The patient was first seen June 16th, at 2 A.M. Up to this time she had felt no pains, although there had been copious discharges of liquor amnii on the previous day. Upon examination a hand was found protruding from the vagina in a dorso-posterior position. The arm was easily replaced, after which the head came down. Two hours later the patient was again visited. At this time she was having strong expulsive pains, and an examination revealed a breech presentation. Labor terminated favorably.—*Medical and Surgical Reporter.*

SNAKE BITES.—DR. L. G. LINCECUM, of Lampasas, Tex., reports (*Southern Practitioner*, Sept., 1889) that he has treated more than one hundred cases of bites inflicted by poisonous reptiles, and that he has never seen a case result fatally that was treated by the hypodermic administration of permanganate of potassium and the administration of chloroform locally and by means of inhalation. He gives the permanganate in one and two grain doses.

FLOATING KIDNEY.—DR. J. T. B. BERRY reports a case of floating kidney in a woman otherwise healthy. Six weeks after the discovery the patient was attacked by peritonitis, to which she suddenly succumbed. Dr. B. presumes that the peritonitis was set up by the escape of some fluid into the peritoneum, possibly from an abscess of the kidney, or from rupture of the ureter.—*N. O. Med. and Surg. Journal.*

SALVE FOR INFANTILE ECZEMA.—DELAPERT gives the following in the *Revue de Thér. Méd.-chirurg.* of Sept. 1:

℞.	Boric acid	℥ jss.
	Vaseline	℥ j.
	Balsam of Peru	grs. viij. ♏.

Sig.—Apply the ointment frequently to all the affected parts.—*Medical News*, Sept. 21, 1889.

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PROFESSIONAL ORGANIZATION.

Recently we have been favored with several announcements of new Tri-State and District Medical Societies, every one of which may be regarded as a finger-board, pointing to a restless, working element that permeates the entire medical profession. The omen is for good and indicates a craving desire for a more thorough professional organization than now exists.

The first of these district organizations to arrive at distinction is the Mississippi Valley Medical Association, that has recently held its fifteenth annual session at Evansville, Ind. The type and character of the papers and discussions of that meeting compare favorably with those of any similar organizations of which we have knowledge, while we have reason to believe that the work to be done by the other and more recently organized societies will be valuable, a credit to their distinct organization and to our guild.

One of the notable outcroppings of the meeting at Evansville was the expressed desire on the part of nearly all of the members, that the American Medical Association would officially recognize the Mississippi Valley Medical Association, and all similarly organized district and tri-State societies, as actual branches of that body. The importance of such a movement can scarcely be overestimated, as it practically proposes a feasible plan for a unification of the entire medical profession of this country.

It is easily understood that, on account of the long distances that separate the great medical centres where the annual meetings of the American Medical Association are held, there is a constant fluctuation and practical change of active membership. Moreover, the American Medical Association being in its organization a body composed of delegates from affiliated State, county, and other local societies, the same persons are not every year sent as delegates, all of which conduces to a constant disintegrating process, that is actively detrimental to the strength and efficiency of this parent organization of American physicians.

Through the organization of district and tri-State societies that are geographically limited in area, which invite the presence and active coöperation of every member of the regular medical profession within their bounds, it would be possible to obtain not only a professed, but an actual allegiance of more than forty thousand active members. Even this number is only about one-half of those who claim to practice regular medicine.

In this more complete organization a certificate of membership issued by any branch, should receive and have the same recognition as if it were issued by the parent organization.

One of the grand purposes of this thorough organization of branch asociations, would be the ability to practically institute a system of collective investigations of disease, and of any department of the sciences, which would in their results be of inestimable value. In fact, the treasury would warrant the inauguration of a system of original scientific research that would not only be a stimulant to every thinking worker in our domain, but a source of pride to every American physician. It would be impossible to comprehend the amount of good that may be accomplished in this direction.

The members of the American Medical Association, some six years ago, believed it to be in the interest of the entire profession that it should have a journal that would not only be the official organ of the Association, but that it would in time become the principal avenue of intercommunication in the entire medical profession, and thus become a practical bond of union. It now assumes its functions in a direct effort to guide the profession in a way that looks to a thorough harmony and complete unification of the entire body of American physicians. The spontaneous growth, and enthusiastic support of the geographical district

medical associations indicates a plan by which a methodical unification may be accomplished. It is desirable that this official channel of intercommunication in the profession shall be placed in the hands of every physician. This may be brought about through the annual payment of dues in the branch associations, in precisely the same manner as adopted in the American Medical Association, so that every member would in this manner obtain the Association journal. A by-law providing that any member who has once paid his annual dues of five dollars should on exhibition of a certificate to that effect be exempt from a second payment, and only required to pay a small sum to defray the current expenses of the additional meeting, or meetings which he may attend.

In this manner the Association journal would not only be the official organ of the American Medical Association, but would also bear a similar relation to all the branch associations, and thus may it be made a veritable mirror, to reflect the very best thoughts of the very best minds in the entire realm of medicine. We need, we must have a practical and harmonious unification of the entire medical profession of this country.

TREATMENT OF POTT'S PARALYSIS BY EXTENSION.

In the *American Journal of the Medical Sciences*, May, 1889, DR. S. WEIR MITCHELL relates how, becoming dissatisfied with the progress of cases of paralysis from spinal caries under the customary treatment, he had recourse to the device of partial suspension by the head, which he believes to have been first systematically practiced by his father, Prof. J. K. Mitchell, with satisfaction to himself and benefit to his patients. The extension is made by a sling suspended from a curved iron made movable and set by a screw, which can be attached to a chair, thus allowing the patient to sit up and, if necessary, to be taken out of doors in that position. The amount of extension used is gauged by a spring balance, and, beginning with a slight pull and regulating the amount of force used by the patient's sensations, may be increased, in some cases, to as much as seventy pounds, and used from four to six hours in the day. By this means he has been able to rectify curvatures and to restore motion, sensibility and nutrition in cases which had been unsuccessfully treated by rest in bed, the plaster jacket and the usual topical and constitutional treatment. He concludes as follows:

"My conclusions are that suspension should be used early in Pott's disease.

"That, used with care, it enables us slowly to lessen the curve.

"That in these cases there must be, in some form, a replacement of the crumbled tissues.

"That unless there is a great loss of power, the use of the spine car or chair, etc., of John K. Mitchell enables suspension, especially in children, to be combined with some exercise.

"That no case of Pott's paralysis ought to be considered desperate without its trial.

"That suspension has succeeded after failures of other accepted methods.

"That the pull probably acts more or less directly on the cord itself, and that the gain is not explicable merely by obvious effects on the angular bony curve.

"That the now well-known influence of extension in Pott's palsy makes it probable that in other forms of spinal disease not due to caries, extension in various forms may be of use, as has apparently of late been made clear.

"That the methods of extension to be used in these and in carious cases may be very various, only provided we get active extension.

"That the plan and the length of time of extension must be made to conform to the needs, endurance and sensation of the individual case."

EDITORIAL NOTES.

HOME.

THE OHIO STATE DENTAL SOCIETY will hold its fifth annual meeting at Cleveland, on October 30, 1889.

CANADIAN MEDICAL ASSOCIATION.—*The Canadian Practitioner*, in an editorial on the recent Annual Meeting of the Canadian Medical Association in referring to the representatives from the United States, says:

"Our brethren across the imaginary line are ever welcome at the meetings of our societies. The United States certainly sent a very able contingent to Banff. Never has the Canadian Medical Association had more distinguished visitors. Among them were Drs. Curry and Whittaker, of

Cincinnati; Drs. Gibney and Bulkley, of New York; Dr. Barker, of Philadelphia; Dr. Marcy, of Boston; Dr. Hannan, of Albany, and others. They took an active interest in the proceedings of the meeting and engaged freely in the discussions when called on. We were glad to meet them, sorry to part from them, and we hope they will visit us again next year in Toronto. In the meantime we have been asked to visit them. Let us do so."

DOMINION MEDICAL ASSOCIATION.—Officers elected for following year:

President, Dr. James Ross, Toronto.

Vice-Presidents, for Ontario, Dr. Bruce Smith, Seaforth; for Quebec, Dr. Lachapelle, Montreal; for Nova Scotia, Dr. Johnston, Sydney Mines; for New Brunswick, Dr. Holden, St. Johns; for Prince Edward Island, Dr. McLeod, Charlottetown; for Manitoba, Dr. Spencer, Brandon; for Northwest Territories, Dr. Brett, Banff; for British Columbia, Dr. Edwards, Nanaimo.

General Secretary, Dr. James Bell, Montreal.

Treasurer, Dr. W. H. B. Aikens, Toronto.

Local Secretaries, for Ontario, Dr. Farley, Belleville; for Quebec. Dr. Elder, Huntingdon; for Nova Scotia, Dr. Muir, Truro; for New Brunswick, Dr. Raymond, Sussex; for Prince Edward Island, Dr. Warburton, Charlottetown; for Northwest Territories, Dr. Higginson, Winnipeg; for British Columbia, Dr. Rutledge, Moosomin.

THE AMERICAN RHINOLOGICAL ASSOCIATION meets at the Palmer House, Chicago, on October 9, 10 and 11, 1889.

THE SANITARY CONDITION OF LOS ANGELES.—We regret to learn that a proposition to issue bonds for the construction of a sewer to the sea has been defeated by a popular vote of the citizens. The necessity for the successful carrying out of some plan to relieve this fair city from the noisome and sickening odors arising from the so-called sewers now in existence, may be judged from a paragraph which recently appeared in a local paper:

"Los Angeles is a city of from 70,000 to 80,000 people. It is almost without sewers. More than three-fourths of it has no sewerage at all. The small sewers we have are choked and overflowing, and foul matter is often forced out of them. Sewer gas from leaks and overflowing sewers floats in the business centers at night, and in the residence portions the air is heavy with foul odors and gases from neighboring cess-pools. The soil of the city is in general such that it does not absorb the foul matter, and that renders the situation worse. In many parts of the city the odor at nights from cess-pools is so strong that residents are obliged to close their windows. Children are dying with diphtheria as a result of these cess-pools."

To longer delay action will be worse than criminal. Money should not count where the health of the people is at stake. We trust that the press of California will so arouse public opinion that this blot on the escutcheon of the gem of the Pacific coast may be removed, and Los Angeles once more regain its reputation as a health resort.

THE AMERICAN RAILWAY SURGEONS will hold their next annual meeting at Kansas City, Mo., in May, 1890.

TYPHOID FEVER is epidemic at Negaunee, Mich. Over 100 cases are reported.

FOREIGN.

THE CONTINENTAL ANGLO-AMERICAN MEDICAL SOCIETY.—The first general meeting of this society will take place at the Grand Hotel, Paris, on Monday at 5 P.M., and the first annual dinner will also take place at the Grand Hotel at 8 P.M. on the same evening. The following gentlemen are Honorary Presidents of the Society: Sir Spencer Wells, Sir Joseph Lister, Dr. Richard Quain, Prof. Ball, Prof. Brown-Séquard, Dr. Ricord, Dr. J. S. Billings, Dr. Fordyce Barker, and Dr. Weir Mitchell. The Executive Committee includes the Hon. Alan Herbert, M.D., Dr. Faure Miller, Dr. Chapman, Dr. Dupuy, Dr. Barnard, with Dr. T. Linn (16 Rue de la Paix) as Secretary.

CHILD MORTALITY IN DUBLIN.—An extremely interesting and suggestive paper, by Dr. Grimshaw, Registrar-General for Ireland, entitled "Child Mortality in Dublin," may be found in the July number of the *Dublin Journal of Medical Science*. The paper deals largely with the relations subsisting between child mortality on the one hand and drunkenness and crime on the other, and is based upon a careful tabulation of the vast amount of statistics at the command of the author. Among other matters of interest, Dr.

Grimshaw establishes the fact that the mortality of children in Ireland as a whole, is lower than in England and Scotland, because the relative proportion of the urban population in those countries far exceeds that of Ireland, while the death-rate of town children far exceeds that of country children; that notwithstanding the foregoing, the child mortality of Dublin is comparatively high, both in relation to that of the cities of England and Scotland and that of the other large Irish cities; and that the extremely intemperate habits of the lower classes in Dublin have much to do with this high death-rate. The children of drunken parents, says Dr. Grimshaw, are not born healthy, and when born are neglected in every conceivable way and are exposed to dangers from reckless negligence which are almost inconceivable. A comparison between the rates of mortality and the rates of drunkenness, as measured by the criminal statistics of large towns, shows that there is a close relationship between the two, the carelessness with respect to child life being shown by the large proportion of children who die without being medically attended during their last illness.

NEW PAMPHLETS ON HYPNOTISM.—The recent appearance of two pamphlets in the German language on the subject of hypnotism is an indication that the interest taken in this subject is by no means confined to the French physicians. The first of these, by E. Baierlacher, Stuttgart, is entitled "The Therapy of Suggestion, With its Technique." The second, by F. Müller, treats of "Hypnotism and Suggestion, as Well as Their Therapeutical Application."

MR. CLARK BELL, of the Medico-Legal Society of New York, was recently tendered a reception by the President and Council of the Society for the Study of Inebriety, of London. A resolution was also adopted congratulating Mr. Bell on his services to legal medicine; on the effect of the discussions at the Medico-Legal Society of New York on criminal procedure in cases in which persons sentenced to death have been ultimately respited on the plea of insanity; on his efforts to abolish physical restraint in the treatment of insanity in the United States; and on his pleas for a reconsideration of criminal procedure in the case of inebriate criminals, who were often really irresponsible and subjects of a true disease calling for medical and not penal treatment. Mr. Bell, in reply, spoke of the excellent state of English asylums for the insane, and dwelt strongly on the urgent need for a more humane and intelligent interpretation of the law as to inebriate responsibility.—*Brit. Med. Journal.*

COLOR BLINDNESS AND DEFECTIVE VISION.—At the last annual meeting of the British Medical Association MR. BICKERTON, of Liverpool, directed the attention of the ophthalmological section to the prevalence of color blindness in the merchant marine, and the insufficiency of the tests now employed for its detection. He proved by the inexorable logic of facts that not only has this particular variety of impaired vision been productive of serious mischief, but that defective "far sight" in officers and look-outs must clearly be held responsible for numerous disasters at sea. The time seems to be now ripe for parliamentary action, and Dr. Farquharson will ask the President of the Board of Trade whether it is the case that a departmental committee has been appointed to consider the whole subject, and whether their report will be presented to the House before the end of the present session.—*Brit. Med. Journal.*

REPORTS OF EPIDEMICS.—The French Minister of the Interior, with a view to receiving regular reports upon the sanitary condition of all parts of the country, and to be able to arrest, as promptly as possible, the spread of epidemics, has requested the Minister of Public Instruction to call a meeting of the principals of schools, in order to establish a new plan of statistics. This will consist in a bulletin setting forth the appearance of epidemic diseases in the schools, which shall immediately be forwarded to the sub-prefect under cover of the Mayor of the commune. A quarterly report of the epidemic affections which have made their appearance during the preceding three months is also to be made. These statistics will be revised in the offices of the sub-prefects and transmitted, through the various departments, to the Minister of the Interior under stamp of the department of "*Assistance et de l'hygiène publiques.*"—*Le Bulletin Médical.*

A STATUE has been erected in Courtrai, Belgium, to Palfyn, the celebrated anatomist of the eighteenth century and Professor of the University of Gand.

TOPICS OF THE WEEK.

THE MEDICAL STUDENT OF THE FUTURE.

An editorial in the *British Medical Journal* of Sept 7th makes special reference to the student of the future From it we make the following abstract:

We may assume without the least offense that most men enter on the study of medicine as the means of obtaining an honorable living; it is not necessary to pretend to any higher motives, like that which should influence a student of divinity. Yet there is room, we maintain, for the influence of the very highest motives in the choice of the healing art as one's calling in life; and the influence is likely to have an actually greater scope, and the end is often even more likely to be achieved, when it is concealed by the friendly covering of the less exalted motive.

There are hundreds of medical men in our land to-day who lead lives of the loftiest enthusiasm, working for the good of their fellow-men, and blessing all within the scope of their influence, pretending with a beautiful humility that they are only following their common business, while they are actually ministering angels. A doctor may live and work for fees and be respected just as any other servant of the commonwealth; he may also live and work for humanity and the love of his neighbor as though he were ordained for the proper work of the ministry. Grand and beautiful as was the work of Father Damien amongst the lepers of Molokai, there is no reason why a medical man should not have done as much, or even more. "Nothing great," says Emerson, "was ever achieved without enthusiasm," and we know it to be so, whatever the hard, cold world may say, which, in truth, does not greatly care for anything which it cannot quite understand.

What is wanted is a noble ideal; given this, it may be exercised as freely in our profession as anywhere in this world of ours. What a man seeks at his medical school this October, that shall he find. Honors, they await him; emoluments, they shall come; happiness, the great enduring pleasure that comes from a sense of duty bravely done, this too shall be his, at the price—at a fixed price and no abatement; to this let him make up his mind as quickly as may be. Let him examine himself and know what it is he wants; he can certainly obtain it. Let the lower motive content him; he will not be disappointed. Medicine is rich enough to pay him for his pains; he shall have his house, his servants, and his gig; shall be justice of the peace, mayor of his town, and be held in honor of men. A man, by indomitable energy and perseverence, may get all he wants. As Hazlitt somewhere says, he could always gain admittance to see any famous picture in any great man's home, notwithstanding the darkest frowns of the servants; and he adds that he could, by similar means, have obtained any post under Government which he might have set his whole mind upon.

The thing, therefore, to be sure of at the outset in devoting one's self to medicine is the end proposed; if self, then not happiness of the highest sort also; if peace of mind and the purest sort of happiness be the end in view, then to live and work for others, for the advancement of the profession in its widest and grandest aspects, is the only certain way to obtain them. Old Thomas Vicary, chief surgeon to St. Bartholomew's Hospital, 1548–62, says in his curious *Anatomie of the Bodie of Man*, that the doctor must be learned, must know his principles, be seen in natural philosophy, in grammar, must speak congruity in logic, speak seemly and eloquently, know things natural and non-natural, and, above all, be good-looking, for whose face is not seemly, it is impossible for him to have good manners.

All this implies much more than is demanded for the mere cramming up for professional examinations. Be liberal in your treatment of the most liberal of all professions, and give at least as much as you take. How few men ever think of paying the least fraction of their indebtedness to science! They consider this all arranged for in their hospital ticket. Such men

> Know, not for knowing's sake;
> Know, for the gain it gets, the praise it brings,
> The wonder it inspires, the love it breeds.

No man striving only for his own happiness can ever attain it, because he is in the midst of forces contending against him, set in motion by every other man of the same determination. Count Tolstoi has admirably explained why this struggle for individual happiness must necessarily fail of its purpose; and Mr. Browning, in his magnificent poem of "Paracelsus"—which should be known by heart by every medical student of the thoughtful sort—has pointed out how mere knowledge for a selfish end can never bring happiness, whatever else it may achieve; but that love, allied to knowledge, can transform the soul to God-like beauty. We may long, like Paracelsus in the poem,

> To wring from Heaven some wondrous good for man;

but it may not be given to many of us to do great things. Of every medical man, however, Society—having in view his great endowments, his privileges, his public estimation, and the dignity of his calling—has the right to expect maintenance of the fabric, if not its adornment; and, as he is necessarily looked up to as a "doctor," that he shall be a real teacher how to live the highest mental as well as the healthiest bodily life. As Sir J. Crichton Browne pointed out recently, this can best be done by imbuing our own minds with the prolific and ennobling thoughts of the wisest writers of the past and present; for to teach we must learn. Some will say we ask too much of the overtaxed medical student. Not so. The mental enlargement we demand can be had as relaxation between the intervals of necessary studies. One hour a day with the great poets and prose writers will enable the student to do better work in the medical school; he will not lose his time by this form of dissipation; and when he goes into the great world which lies outside his hospital he may find his own medicine and that of his patients in the balm for troubled spirits which the philosophers and poets of all time stand by to minister. We say he will not lose his time by this expansion of his education; it will serve to digest his technical knowledge, to combine and blend his studies into a truer

and sounder learning than can be tested by examination papers or rewarded by degrees.

Let no student, therefore, think that so much anatomy, physiology, medicine and surgery, signed up and certified for at school and college, suffices to make the medical man of to-day. In one of the most suggestive of the inaugural addresses delivered in London last October, that by Dr. William Ewart at St. George's Hospital, this point was strongly emphasized. We cannot refrain from recalling a sentence or two. "Among the youths," says Dr. Ewart, "who elect to follow this calling, many do so in ignorance of what the choice implies. Of no other profession is it more true that an easy entrance examination is unkind. Ours, nowadays more than ever, is an exacting profession. Although neither genius, nor brilliancy, nor even talent are wanted, she claims energy, physical and mental, capacity for sustained efforts, earnestness, and a high moral tone."

A medical practitioner whose whole life is not that of a persevering student has no business in the profession. A man who knows nothing but what his curriculum enforces, and who makes haste to forget that as soon as it has obtained him his license to practice, can only bring discredit on the high-minded and cultivated men who spent their lives in making smooth the path he has unworthily trodden. If medicine is to hold its high position and retain the respect in which it is justly held, the men who are coming forward for its emoluments and distinctions must be equipped with all the richer learning which is required to enable them to hold their own in a world which is daily becoming more highly cultured, and which will certainly demand more of its medical advisers. A mental outlook bounded by six-ounce bottles and an intellect from which there is gradually fading the scanty lore gathered at the medical school with much pain and but partial comprehension far too generally characterise the middle-aged general practitioner of to-day. He of to-morrow will need to know more, and to know it in quite another way.

CREOLIN IN OBSTETRICS AND GYNECOLOGY.

DR. THEOPHILUS PARVIN has been employing creolin very extensively of late. He finds it valuable in cervical catarrh, in which he applies it at intervals of three days. In the strength of one teaspoonful to a pint of water it is use wherever a vaginal injection is indicated. Benzoated lard with the addition of 4 per cent. of creolin makes a reliable antiseptic ointment, useful alike to the obstetrician and gynecologist. Parvin makes use of this in tamponing the vagina in cases of descent or posterior displacement of the uterus. For this purpose a long strip of absorbent cotton smeared with the ointment is tucked alternately into the anterior and posterior cul de sac until the vagina is packed either partially or completely as the case requires. Such a tampon has been left *in situ* by Dr. Parvin as long as six days, at the end of which time the only odor detected was that of creolin. In obstetrical practice creolin possesses the advantage of revealing itself both by sight and smell, thus obviating the dangers which accompany the use of sublimate and carbolic acid, which are often used in too strong solutions. Mixed with water in the proportion of one teaspoonful to the pint, creolin makes a milk-colored fluid. —*Practice.*

THE USE OF ANTISEPTICS BY COUNTRY SURGEONS.

The surgeon of the city, with all his expensive appliances and machinery and skilled assistance, may find the aseptic method of treating wounds practicable; but the country practitioner who must forego those aids, and who finds his patient oftentimes in anything but aseptic surroundings, must resort to other and simpler methods.

All my surgical instruments and dressings are carried in one small hand-bag. I have carbolic acid, tablets of corrosive sublimate and iodoform. Needles, knife-blades and other small instruments are kept in a 1–60 carbolic-glycerin solution. After using and cleansing, they are put back into this solution, and thus are always ready for immediate use. Other large instruments are put into a 1–40 carbolic solution some time before needing them. My bag contains silk on a reel, and drainage-tubing, both in a 1–4,000 solution of corrosive sublimate. Sterilized sponges are carried in a 1–1,000 corrosive sublimate solution, and suitable pieces of oiled silk are put in the same, some time before using.

After the flesh adjacent to the wound has been thoroughly washed, both skin and raw surface are bathed in a corrosive sublimate solution, the strength varying between 1–1,000 and 1-5,000, in inverse proportion to the extent of the raw surface. After the incisions are completed, the cut surfaces are washed for a considerable length of time in a 1–4,000 corrosive sublimate solution, hot enough to check bleeding, to blanch tissue, and to render the parts thoroughly aseptic.

For ligature I use silk, and cut the ends short. If the wound is a large one and necessitates the use of a drainage tube, I do not think that it makes much difference whether or no the ligatures are cut short. But if the wound be small, if there be no drainage tube, or if it be early removed, I consider that the long ends of the ligatures prevent absolute healing in a short space of time. These short silk ligatures either become absorbed or encapsuled. They give me no trouble, and I get healing by first intention through the full extent of the wound, which is not closed until every particle of oozing blood has ceased. For healing, I depend largely on the most careful and accurate approximation of the parts.

After the wound is closed, and thoroughly washed with a 1–4,000 corrosive solution, iodoform is used freely, as wounds seem to heal more kindly with it than without it. After this a piece of sterilized oiled silk large enough to cover the wound is applied. This is used for two purposes: to prevent the sticking of the dressings, and to keep the plasters which cannot be rendered aseptic from contact with the wound. Over this are placed several layers of sublimate or carbolic gauze, then a large piece of oiled silk to cover the whole, which is bandaged in the ordinary way. Subsequent dressings I do, if possible, myself, and make them as few and far between as

may be. On redressing, the wound is generally found to be so clean that the usual washing is simply a process of dampening with an antiseptic solution.

Since I began the constant and systematic use of antiseptics, I have seen most cases heal without a drop of pus. In simple amputation I have come to expect healing by first intention except around the drainage tube, and solid healing by from twenty-one to twenty-eight days after operation. As a rule, I greatly prefer the action of corrosive sublimate to that of carbolic acid as an antiseptic. But if I know of the existence of albuminuria, or suspect any latent tendency to disease or congestion of the kidneys, I am very careful to avoid it.

It will be seen that my method is exceedingly simple, so simple that it would hardly be a matter of interest except for the fact that its very simplicity makes it practicable, and this especially adapts it to the unassisted country surgeon. It is now something over two years since I have seen a touch of surgical fever in my own practice, and in uncomplicated surgical cases I have rarely seen a temperature above 100°. I now get healing of large cut surfaces by first intention, as a rule; formerly it was the exception.—Dr. Robt. Burns, in *Boston Med. and Surg. Jour.—Weekly Medical Review.*

SOCIETY PROCEEDINGS.

New York Academy of Medicine.—Section on Orthopædic Surgery.

Stated Meeting, April 19, 1889.

A. B. Judson, M.D., in the Chair.

PSOAS ABSCESS FOLLOWING POTT'S DISEASE.

Dr. V. P. Gibney presented a patient, a girl 14 years years old, on whom he had operated for double psoas abscess following Pott's disease of nine years' duration. The carious vertebræ were evidently consolidated when last November large abscesses were discovered, and the patient was brought under treatment. On the right side the tumor was incised in Scarpa's space, and long forceps were passed under Poupart's ligament through the iliac fossa, and into the lumbar region, and a counter opening was made on the forceps along the border of the erector spinæ muscle. Pieces of bone escaped with the pus. The cavity was curetted and the bone scraped gently. With antiseptic dressing and injections of carbolic acid solution 1-40, and 1 per cent creolin solution, both wounds closed in a month. The left side was then operated on by simple incision and drainage. Large quantities of bone detritus were scooped out with the finger. A sinus still remains on the left side, from which a piece of bone is occasionally discharged.

The case was exhibited as showing the advantage of Owen's method over attacking simply the sac and not the whole suppurating track.

Dr. Gibney believed it would have been better to have treated both sides according to Owen's method; but in general he doubted the propriety of doing this operation during exfoliation, which would necessitate a subsequent operation. It is also important that the patient should be in pretty good condition.

Dr. R. H. Sayre had used injections of peroxide of hydrogen in large abscess cavities with better results than from carbolic, or bichloride, or boro-salicylic solutions.

Dr. Gibney said a similar experience had been reported by Dr. Vance.

Dr. Judson thought that an objection to operating on these cases was that for the natural incarceration of the pus and detritus, we submitted an artificial opening, necessitating antisepsis to hasten cicatrization. If these accumulations are doing no harm, it is better to leave them for removal by natural processes; and if in due time they perforate the skin, the general and local conditions are ready to promote evacuation and speedy cicatrization.

Dr. J. A. Wyeth said that operation is indicated when large abscesses are situated on exposed parts of the body, and liable to injury and subsequent septic complications. He recalled the case of a woman who, thirteen years after being considered cured of Pott's disease, slipped and fell, striking a large gluteal abscess. The accident speedily gave rise to symptoms of sepsis with high febrile movements, and several operations under ether were necessary for the removal of bone detritus which was spread through the gluteal muscles. The patient ran great risks, but finally recovered. He had had other similar cases. A psoas abscess behind the peritoneum causing no trouble, should be left alone, but one pointing in the thigh, back, or other exposed situation, should be operated upon, as the danger of the operation is almost nil.

Dr. N. M. Shaffer was reminded of the history of a patient with Pott's disease and an abscess occupying the gluteal region and the anterior part of the thigh. The child fell, striking the gluteal tumor. The immediate symptoms were alarming, but without the adoption of any special treatment, the accident resulted in the entire disappearance of the abscess. If there were any means of determining with certainty when an abscess from Pott's disease contains bony detritus, it would be preferable to operate; but while spondylitis is still active, it is better to postpone operating as long as possible. He recalled a case of Pott's disease and hip joint disease which he had been watching for several years, where spiculæ of bone as large as the end of the finger were expelled in a sudden and violent attack of coughing. The bone was undoubtedly from the cancellous structure of the sixth or seventh cervical vertebra. The patient

was relieved at once, and physical examination showed that very little trouble had been caused by the entrance of the bone through the lung tissue into the bronchial tubes.

KNOCK-KNEE; CLUB-FOOT; DEFORMITY FOLLOWING HIP DISEASE.

In a paper on "Osteotomy," DR. WYETH related two cases in which he had corrected in- and out-knee in the same patient by double osteotomies. The patients were 3½ and 4 years old respectively. Both were discharged entirely relieved. Strict antisepsis was followed and the limbs were dressed in plaster of Paris in a position of over-correction. He prefers MacCormac's incision on the outer side and just above the capsule, since the saphena vein and anastomatica magna artery are not endangered as in McEwen's operation on the inner aspect of the thigh. He also briefly related three cases in which patients, aged 13, 18 and 26 years respectively, had been relieved of the deformity following hip disease, and restored to good locomotion by operations on the femur. The method pursued was Gant's osteotomy below the lesser trochanter. The after treatment had been Buck's extension and Hamilton's long splint. In one of the patients there had been double hip disease. Two months after the left femur had been operated on, the right was operated on; and four months after the date of the first operation the patient was discharged cured, with good locomotion.

He also related two cases in which congenital talipes equino-varus of the most exaggerated type had been corrected with good recovery, and with the feet in excellent shape. Tenotomy of the tendo Achillis, tibialis anticus, and tibialis posticus was first done; the first two subcutaneously, and the last by open incision, the tendon being dissociated from that of the flexor digitorum, and divided on an aneurism needle. The operation was completed by an osteotomy as follows: An incision was made on the outer side of the dorsum, exactly over the point of greatest convexity; the tissues were lifted from the tarsus by an elevator, and a conical section including portions of the calcaneus, astragalus, cuboid, and scaphoid was removed. The rule should be to remove all parts which prevent replacement of the foot. The foot being brought into normal position by eversion and rotation, aseptic dressing and plaster of Paris completed the treatment, the result of which was excellent.

DR. GIBNEY said that the anatomical point raised in the paper concerning supra-condyloid osteotomies certainly commends to us the operation of MacCormac. Although in- and out-knee in the same subject is rare, he had seen many instances of multiple deformity among Bohemians and Italians. He had recently done a sextuple osteotomy at one sitting, and is treating an ununited fracture of the right tibia, all the others having united.

DR. JUDSON thought that in congenital talipes the reduction of the deformity by mechanical or operative means is easy; but that is a small part of the necessary treatment. So long as the patient is growing he must be under occasional observation, and if necessary made to wear for a few months, at intervals of two or three years, a brace fitted to the present needs, in order to prevent threatened relapses. In the deformities of the knee there is especial reason for preferring mechanical means of correction, because here we have the advantage of the leverage found in the tibia and femur, while in club-foot there is only the tibia on one side, and on the other the short and many-jointed foot.

DR. H. L. TAYLOR said that late observation of the results of treatment is of especial importance in orthopædic practice. If surgeons and orthopædists would report the condition of patients five, ten, or more years after dismissal, a more intelligent choice of methods could be made.

DR. SHAFFER said that his experience with mechanical appliance in the treatment of talipes leads him to think that many severe operations are performed on patients who could be better treated by traction. He recalled a case in which there was confirmed equino-varus, although three or four tenotomies and five or six osteotomies had been performed. He had applied the "external lateral stretcher" and the patient is now walking on the flat of the foot. He referred to the interesting question whether osteotomy is advisable when there is motion in the hip-joint. In a patient, on whom Dr. W. T. Bull had operated, some motion was found after etherization. The reduction of the deformity by osteotomy had been followed by persistent traction with the hip-splint; and good position and slight motion had both been retained.

DR. GIBNEY believed that the presence of motion is not a contra-indication to the operation. About six months ago he had performed Gant's operation for a right-angled deformity. The flexion had been reduced from 90° to 15°, and the limb was retained at 15° of flexion by a traction apparatus for three or four months, when it was removed and the patient allowed to walk about with a high shoe. After about six weeks the flexion had increased to 25° or 30°. Traction was re-applied, and the limb is being again brought down. He recognized the necessity of protective apparatus in order to retain or increase the result secured by operation.

DR. WYETH had operated in several cases where there was motion and had refused to do it in others. In a patient whom he had seen with Dr. L. A. Sayre, there was considerable motion, and he had done a tenotomy for temporary relief, postponing osteotomy.

DR. R. H. SAYRE said that in the case referred to, improvement had followed the tenotomy, but an apparatus is necessary to prevent a return of deformity. He thought that in some cases sufficient reduction of the flexion might be brought about by section of the psoas and iliacus muscles. This had been done in one case in which, although the operation had been subcutaneous, injury of the vessels had been avoided. By open section this danger would be avoided.

DR. J. D. WILSON expressed surprise at the frequent mention of elevations of temperature in the history of Dr. Wyeth's cases, which had been treated antiseptically. Have our teachings been too absolute, or do such temperatures really indicate imperfect antisepsis?

DR. WYETH replied that the "temperature of reaction," occasionally as high as 102°, occurred in the first twenty-four hours, but it usually fell to normal in forty-eight hours. Traumatism, ether, shock, and the use of sublimate combine to produce this reaction, which might still be called an aseptic temperature. He closes the discussion by saying that the simplicity and safety of osteotomy had been shown by the cases he had reported. While no case of equino-varus treated the first two years of life should require tarsotomy, neglected cases will present themselves where nothing but tarsotomy will give relief. The operation may give considerable foreshortening to the foot, but one can certainly correct the deformity, however great, by removing enough bone; and if this be properly done, he believed it to be real conservatism.

Association of American Physicians.

Fourth Annual Meeting, held in the Army Medical Museum and Library, Washington, D. C., September 18, 19 and 20, 1889.

WEDNESDAY—MORNING SESSION.

The Association was called to order at 10 A.M. by the PRESIDENT, DR. FRANCIS MINOT, of Boston.

The first business was the reading of the President's Address:

THE PROGRESS OF MEDICINE DURING THE LAST FIFTY YEARS.

The immediate causes of the great advancement of medicine were the growth of physiology and pathology, including bacteriology, and the improvements in clinical and laboratory teaching of the present day, which have led to a better acquaintance with the nature and causes of disease, to a more rational and successful therapeutics, and to the prevention by means of hygiene of a large number of diseases, including some of the most fatal. These means have been greatly aided by the progress of science in general and by the conveniences of modern civilization, which enable observers from different countries to assemble together for interchange of knowledge and experience. A large share of medical progress is also due to the dissemination of knowledge by means of well conducted journals which enable thousands of practitioners who cannot leave their homes to be constantly supplied with the most recent discoveries relating to pathology and the diagnosis and treatment of disease. The organization of this Association is peculiarly adapted for the progress of medical science, representing no one section of our country, but including practitioners from all parts of the United States and Canada, whose experience, knowledge, observation and ability are brought together for comparison and for mutual instruction.

The President reported the death of the following members: Drs. H. D. Schmidt, New Orleans; John C. Dalton, New York (honorary member); Robert Palmer Howard, Montreal; and Edward T. Bruen, Philadelphia.

DR. C. F. FOLSOM, of Boston, read a paper entitled

THE EARLY STAGE OF GENERAL PARALYSIS.

The author first reported a number of cases illustrating the early stage of the disease in which the motor disturbances were very slight and might readily be overlooked and escaped detection. The striking loss of muscular control or power, generally considered a part of the disease, were not found until a late period of the disease. The mental symptoms consist in impairment of a peculiar quality, often so slight as to be made out with difficulty.

The disease arises most commonly under prolonged strain, particularly when associated with unaccustomed excesses. At least two-thirds of the general paralytics have had syphilis. The relation of the disease with syphilis is too frequent to be accidental. The disease is, however, not a stage of syphilis, and is not benefited by specific treatment. The prognosis is probably not so hopeless as it is generally considered to be.

The common early treatment is harmful. Foreign travel is injurious. The only hope of at least partial cure or marked amelioration is in entire mental and physical rest.

DR. ROBERT T. EDES, of Washington, reported the case of a man suffering from pronounced general paralysis, in whom the first symptoms of the disease made their appearance some twenty years ago. If the anatomical view of general paralysis is accepted he did not consider it strange that mental symptoms might precede the motor, depending upon the seat of the lesions.

DR. S. WEIR MITCHELL, of Philadelphia, was sure that certain cases of general paralysis began

most markedly with motor trouble, while others began most decisively with mental conditions. In regard to syphilis he agreed with the author, except that he had seen cases due to syphilitic disease in which cure had followed specific treatment. He had also seen cure follow in a small number of cases where the treatment was begun in the early stages, but where the motor disturbances and the mental incapacity were sufficiently marked to render the diagnosis reasonably certain. In all of these cases there had been a total abandonment of all previous pursuits with absolute mental and physical rest. He agreed with the author that foreign travel was often injurious.

DR. JAMES J. PUTNAM, of Boston, remarked that the fact that syphilis acts in this disease not by producing a direct lesion, but in an indirect manner, justifies us in looking for other causes of degeneration which might act in a similar manner. He asked if the reader had seen any cases in which chronic lead poisoning was the apparent cause of the general paralysis, and related a case in which the imperfect and slow speech, the imperfect handwriting and the expression of apathy and indifference suggested a diagnosis of general paralysis. In this case there was, however, a history of drinking of water contaminated with lead, and there were certain local symptoms indicating lead poisoning.

DR. WM. PEPPER, of Philadelphia, believed that he saw these cases from a different standpoint than that of Dr. Folsom. They came to him as cases of dyspepsia, lithæmic disturbance and the like, and are under his care for some time before symptoms leading to recognition are developed, sometimes for years before the paretic symptoms appear. He could not regard syphilis as in any way essential in the causation of general paralysis.

In regard to the early stage of the disease, there was not one symptom mentioned by Dr. Folsom or described by others as indicating the early stage, which he did not often find in cases of nervous lithæmia. There may be a grouping of these symptoms or a discovery on the part of the diagnostician which will enable a finer and finer shade of these differences to be recognized, which does constitute a basis of diagnosis. He thought that general paralysis could be initiated by many disturbing, depressing or irritating causes, and that in its early stages and slight degrees it was capable not rarely of being entirely cured. If these cases are permitted to go on with neglect of hygienic habits and with excesses, sexual, alcoholic or business, a notable proportion will end with symptoms of general paralysis.

DR. C. F. FOLSOM, of Boston, said in regard to lead that while he had seen cases in which this agent had produced symptoms similar to the initial symptoms of general paralysis, he had not seen a case in which the terminal symptoms of general paralysis had been produced. As illustrating apparent cures after specific treatment he referred to a case in which the use of large doses of iodide of potassium apparently produced complete recovery, and the patient returned to his previous business. The symptoms after several months reappeared and had continued to steadily progress. Whether this is the result in all such cases, he was unable to say.

DR. JAMES STEWART read a paper on

TETANY.

The details of the following case were referred to:

The patient, a male, aged 40, has been troubled during the past eight years with regularly recurring attacks of tetany. He served as a soldier during the American civil war. Suffered at that time and subsequently from chronic dysentery and malarial attacks. For upwards of ten years he has been troubled with diarrhœa. Patient is tall, emaciated and anæmic. The first subjective symptom of his tetany is usually double vision, which is quickly followed by the characteristic contractions of the flexor muscles of the hands. Occasionally the flexors of the fore-arms and the abductors of the arms become spastic, muscles of the face almost constantly suffer, muscles of the lower extremities rarely.

The affected muscles are the seat, during the attack, of fibrillary twitching. The attacks often last several days (seven to twelve), unless terminated by the very free use of morphia.

The galvanic irritability of the nerves is found to be greatly increased, also the mechanical irritability of both nerve and muscle. Knee-jerks exaggerated during attack, absent in intervals. Œdema of the hands and arms, with herpetic eruptions frequently to be seen after particularly severe attacks. The quantity of urine excreted during attacks is usually normal in amount, and contains urea and indican in great excess. Patient has been under observation for more than three years, and it has been noticed during the past two years that he has been getting gradually dull and apathetic. It takes him a long time to answer questions, he complains of general numbness, his face and lips are swollen, symptoms closely resembling those seen in myxœdema.

Tetany may be divided into three varieties:

1. Epidemic or "rheumatic" tetany, common in Europe, but extremely rare in America. The course is acute and favorable.

2. Tetany from exhausting causes, as lactation, diarrhœa, etc. Course is chronic and favorable.

3. Tetany from removal of the thyroid glands. Course generally is usually either quickly fatal or chronic and incurable.

4. A form of tetany occurring in cases of dilatation of the stomach. Very fatal.

Infantile tetany is excluded from above di-

vision, as what is so frequently called tetany in infants is not that disease. No doubt true tetany may occur in childhood.

Dr. John T. Carpenter, of Pottsville, Pa., read a paper on

TETANY AND A NEW THEORY OF ITS PATHOLOGY.

The author defined tetany as a nervous disorder accompanied by tetanic spasm of an intermittent character, which may extend from the extremities to the jaw and be reproduced during the periods of intermission at will by pressing sure on the trunk of the affected nerve trunk or over the blood vessel obstructing the circulation.

A historical version of the disease was given. Tetany was regarded not as a special disease, but as a sequel of precedent phenomena only. The affection was regarded as the result of septic absorption. The diminution of cases of tetany coincident with the successful treatment and the prevention of septic poisoning, was regarded as an argument in favor of the connection between septicæmia and tetany. Cases illustrating this view were cited. The views previously held in regard to the pathology of tetany were discussed and considered as tenable.

Dr. Francis P. Kinnicutt, of New York: I have seen but two cases of intermittent tetany, both occurring in patients with dilatation of the stomach. In one the dilatation was due to pyloric stricture resulting from cancer; in the other there was non-malignant stricture. In both of these cases the conditions were favorable to absorption of poisonous matter.

Dr. F. T. Miles, of Baltimore, reported the case of a young woman, aged 22 years. She had suffered from six to eight years from dilatation of the stomach. She had vomited acid matter, but never offensive. She had several times had numbness of fingers and toes. She suffered her first attack of tetany twenty-four hours before her death. In this case the stomach had never been washed out.

Dr. A. Jacobi, of New York, had been struck with the stress laid by the readers upon sepsis as the cause of tetany. In one of the cases reported by Dr. Stuart which he thought was due to absorption of putrid material, the stomach was twisted, and Dr. J. suggested that the intermittent contracture was due to nervous influence, resulting from the twisting rather than to absorption. He did not doubt that there were cases in which septic absorption produced such symptoms, but when we recall the fact that the contracture is temporary, we must conclude that the influences giving rise to that attack were also temporary. Many of these cases are, I think, the result of nervous irritation. In some of the cases reported I should attribute the condition to anæmia.

Dr. James J. Putnam, of Boston, remarked that the reported cases of tetany showed such a variety of infectious sources, that it seemed hardly probable that they should act in such a similar manner unless there was something else behind. Two or three things are to be considered: First, the influence of habit. The disease set up by a variety of causes may continue as a result of habit. Second, the suggestion that in such cases of disordered action we have to deal with an over-sensitiveness of physiological arrangement is important. In these conditions we have the disordered manifestation of what is really a function, but one not ordinarily recognized as it has no independent existence. It would seem that in the absence of further knowledge with regard to infection, and the manner this infection arising from various sources may act, we should insist upon the possibilities of explanation which are presented to us by what we know of the physiology and disordered physiology of the nervous system, in attempting to explain conditions met with in this and similar diseases.

Dr. James Stuart, of Montreal, said in connection with the influence of peripheral irritation, that in the cases of dilatation of the stomach where tetany had caused death, the symptoms came on five hours after the stomach had been washed out. This would point to irritation rather than decomposition as the active cause in this class of cases. There are many other cases were infection could not enter.

Dr. John T. Carpenter, of Pottsville, said in regard to anæmia as the cause of tetany, that we should have to go back of the anæmia to the cause that produced it. He knew of no cause that would produce anæmia so surely as septic absorption.

Afternoon Session.

Dr. A. B. Ball, of New York, read a paper on

THROMBOSIS OF CEREBRAL SINUSES AND VEINS.

The author first referred to the influence of the following factors in the production of thrombosis: 1. Blood stasis; 2. Vessel lesions; and 3. Blood changes. The anatomical conditions in the sinuses that favor thrombosis were described at length. A number of cases of marantis thrombosis of cerebral veins and sinuses in chlorotic girls.

The symptoms were next considered. Much importance has been attached to distension of external veins collateral to the internal veins supposed to be affected, giving rise to hæmorrhages and œdema. These signs are frequently absent and may be due to other conditions. The mobility of the symptoms has been considered of value. In these cases the cerebral symptoms undergo strange alterations not seen usually in other affections. Active delirium is exceptional.

The depression continues but alternates with a certain amount of improvement. Fever is absent at first, and if present is to be attributed to complicating conditions. Paralytic symptoms of varying extent are usually present. With the exception of the variation in degree the paralysis does not differ from paralysis from other causes.

DR. WILLAM OSLER, of Baltimore, exhibited two specimens illustrating the conditions described by Dr. Ball. The first specimen was one of extensive thrombosis of the lateral sinus occurring in a man who died from phlegmonous erysipelas of the cheek. There were no special symptoms in that case.

The second specimen was from a woman dying of consumption. It was thought that gradually increasing coma and the onset of cerebral symptoms were supposed to be due to basilar meningitis.

DR. A. JACOBI, of New York, enumerated certain additional aiding causes. The first was a disproportion between the white and red blood corpuscles. The second cause was the relative absence of muscular tissue in a number of the veins. A third cause was absence of water in the blood, often due to the withholding of sufficient fluid in the diet of patients. The last cause referred to was weakness of the heart. When in exhaustive diseases the heart is allowed to become feeble, thrombosis, with all its bad results, must be expected. It is certainly a good therapeutic measured to stimulate and strengthen the heart in every disease that will last long or tends to terminate in exhaustion.

DR. WM. H. WELCH, of Baltimore, said: There is one point of great force in explaining the production of thrombosis; that is the possibility that there is some form of intoxication analogous to that produced experimentally by various substances, such as the fibrin ferment. Under such circumstances there is almost instantaneously extensive thrombosis wherever the ferment reaches. Pathologists are aware of the frequency with which thrombi, usually of a mixed character, are found in the cerebral sinuses, particularly the superior longitudinal sinus, in cases that have presented no symptom during life.

DR. SAMUEL C. BUSEY, of Washington, D. C., read a paper on

THE EFFUSION OF CHYLE AND OF CHYLE-LIKE, MILKY, FATTY FLUIDS INTO SEROUS CAVITIES.

The object of the paper was to present the subject of effusion of chyle, chyle-like and fatty fluids into serous cavities. It was limited to the effusion of such fluids into the cavities of the pleuro-peritoneum and tunica vaginalis.

Effusion into the pleural cavities, Chylo Thorax. Of this, including the doubtful cases, there have been ten cases reported. In five of these the chyle poured directly from the thoracic duct. The diagnosis in these cases can only be made by evacuation and examination of the fluid. The prominent symptoms are dyspnœa and accumulation of fluid in one or both cavities. The prognosis is unfavorable and the treatment expectant.

Effusion into the tunica vaginalis testis.—The case of galactocele reported by Vidal (de Caasis) seems to have been the first observation of this class of effusions. In two of the reported cases the paludous orifices of the vessels from which the lymph exuded were found. Since 1885 there have been reported in this country thirteen cases in which filaria were found, and two of these were cases of lymphocele. It has not been shown, however, that filaria are present in every case of lymphocele. The recent invasion of portions of the sub-tropical belt of this country by the filaria, and the reports of cases of disease with which the parasite has been so uniformly associated, together with the fact that the mosquito has been proven to be its intermediate host, present consideration of the highest importance to the profession and general public.

Chylous and oily ascites.—A tabulated statement arranged chronologically, presenting a condensed summary of the reports of cases of chylous and oily ascites, was given. The number of cases reported was thirty-three. Primary rupture occurred in but five cases.

The symptomatology of effusion of chyle into the peritoneal cavity is not sufficiently distinctive to differentiate such cases from ordinary ascites, and a diagnosis is only possible after examination of the evacuated fluid. Of the 33 cases 19 died, 9 recovered, and in 5 the result is not stated. Of the 22 cases of chylous ascites proper 12 died, 5 recovered, and in 5 the result is not stated. Meagre and unsatisfactory as are the clinical details of these cases, they point to two conclusions: 1. That a free and unobstructed channel of communication between the venous system and the chyle conveying vessels is essential to the proper nutrition of the body and preservation of life. 2. That death following the partial or complete obliteration of this communication is the result of inanition.

DR. WM. OSLER, of Baltimore, said that in ordinary post-mortem works it was not unfrequent to meet with varices of the chyle vessels of the mesentery covering the walls of the intestine. Sometimes there are extravasations which may form large chylous cysts.

With reference to chyluria he was positive that there was a non-parasitic form. He had made thorough examinations in one such case and failed to find filaria. On post-mortem examination nothing was discovered. Also in a case of lymph scrotum, he had examined the fluid and the blood and had found no embryos. He laid a great deal of stress upon these cases, as it is gen-

erally stated that these conditions are always parasitic.

Dr. W. H. Welch, of Baltimore, exhibited a specimen of chyle removed from the abdominal cavity of a boy 12 years of age. He described the chemical and microscopical characters of the fluid, and dwelt upon the importance of distinguishing between chylous and fatty hydrops.

Dr. J. F. A. Adams, of Pittsfield, Mass., read a paper on

SUBSTITUTES FOR OPIUM IN CHRONIC DISEASES.

The disadvantages attending the use of opium are: 1. In an overdose it is a poison. 2. In ordinary doses its benefits are largely offset by various functional derangements. 3. Its use involves the danger of the opium habit.

Remedies that may be substituted for opium for the relief of pain. The antipyretics, antipyrin, acetanilide, phenacetin and exalgin have well grounded claims to be regarded as rivals of opium. They are, however, less certain and less prompt, particularly when pain is very violent. Antipyrin in five to ten grain doses had been found valuable as an analgesic particularly in headache, neuralgia and rheumatism.

Acetanilide he had found less active than antipyrin. He used it in doses of seven or eight grains. He had found it particularly serviceable in lumbago and dysmenorrhœa. In the latter condition one or two doses has afforded prompt relief.

Salicylic acid and its sodium salt should be included on account of their marked effect in the relief of pain in rheumatism, particularly its acute form.

Substitutes for opium to induce sleep.—Paraldehyde is an excellent hypnotic, although rather uncertain. Hydrate of amyl is generally preferable to paraldehyde, being more reliable as well as more agreeable. Sulphonal is more extensively employed than either of the above, and is applicable to all forms of insomnia.

Chronic diarrhœa.—It is probable that no remedy has been used in this affection so largely as opium. The effects of this mode of treatment have been far from satisfactory. Recently the author had treated these cases antiseptically with far better results. The remedy chiefly used has been sodium salicylate in five to ten grain doses three or four times a day. He had also used salol with success.

Dr. G. M. Garland, of Boston, referred to the value of the fluid extract of gelsemium as a substitute for opium. In frontal headaches it has an admirable effect. It is used also with advantage in difficult and painful menstruation and certain forms of neuralgia. As a simple hypnotic gelsemium answers well in cases of temporary congestion with insomnia and headache. In hysterical conditions this agent will often induce sleep in a short time. The drug is given in doses of five to ten drops every half hour until the desired effect is obtained or its physiological effect is produced in diplopia and ptosis. These appear sufficiently early to serve as a warning.

(*To be concluded.*)

DOMESTIC CORRESPONDENCE.

LETTER FROM NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Meeting of the Fifth District Branch of the New York State Medical Association—The Excursion to Milford, Pa.—Mr. Rudolph Hering's Report on the Sewage System of New York—The Suicide of Dr. Tilden Brown—The Power of an Artificial Electric Current to Destroy Life.

The seventh special meeting of the Fifth District Branch of the New York State Medical Association was held at Port Jervis, Orange County, the last week in August. The place of meeting was the parlors of the Fowler House, and the session was one of interest both from a scientific and social point of view. The first paper was by Dr. W. B. Eager, of Middletown, on "The Use of Concentrated Lactic Acid." He had employed this agent with success in the case of epithelioma and other conditions, and, in fact, wherever acetic and nitric acids are generally used as escharotics.

Dr. J. H. Hunt read a paper on "The Treatment of Typhoid Fever," with special reference to the cold water method. It was accompanied by carefully prepared charts, with details of temperature, pulse, etc., and elicited a prolonged discussion, in which many valuable points were brought out. Dr. Alfred L. Carroll, of New York, exhibited a small and inexpensive apparatus, devised by himself, for the rapid estimation of CO_2 in atmospheric air. He said that the apparatus generally used was more or less expensive because the jar was accurately divided off into cubic centimetres, and on account of the accompanying mechanical contrivances. This one was made out of an ordinary pickle jar, a couple of rubber or cork stoppers, two or three feet of small rubber tubing, and three or four pieces of best glass tubing. Dr. H. B. Swartout, of Port Jervis, then read the notes of a case of empyema. The patient was presented for examination by those present, and the case was discussed at some length. An elaborate paper by Dr. T. H. Manley, of New York, who was unable to be present, on "Injuries of the Skull, with some Observations on One Hundred and Fourteen Cases, was read by title, on account of the lateness of the hour, and the Branch then adjourned, after a very interesting session.

Almost forty Fellows attended the meeting, and

a considerable number of them remained over night to go on a most attractive excursion to Milford, Pa., and the Sawkill Falls beyond, which had been provided by the Committee of Arrangements, of which Dr. J. H. Hunt, of Orange Co., was chairman. The company occupied two large eight-seated wagons, and thoroughly enjoyed the magnificent drive, over a road that might compare in smoothness with those in Central Park, through one of the most romantic regions in the country. Milford has always been noted for its exquisite scenery, which has long made it a favorite resort for artists, and on account of the numerous rains during the past summer, the rich foliage and the many beautiful mountain streams were at their very best. The weather was delightful, making every one feel in the most jovial spirits, and after their exhilarating drive to the north Sawkill Falls, the party enjoyed to the utmost the elaborate and appetizing supper which had been provided for them at the famous Fauchére House. There was then a pleasant evening ride of seven miles back to Port Jervis, after which everybody was ready to sleep the sleep of the just.

The next morning Dr. Hunt furnished a sumptuous breakfast in his little Memorial Hospital at Port Jervis, and after the night's refreshing slumber the company did ample justice to the many good things provided by his bountiful hospitality. It was a very informal repast, and the occasion was one of social pleasure which will long remain green in the memories of those who were present. The Hunt Memorial Hospital, which has only recently been erected, although small, is one of the finest and most completely equipped in the State, and its many admirable appointments and appliances were inspected with much interest; after which this pleasant outing came to an end, and all parted well pleased with the success of the seventh special meeting of the Branch.

About two years ago General Newton, Commissioner of Public Works, secured the services of a civil engineer of high repute, Mr. Rudolph Hering, to make a thorough examination of the sewage system of the city, and his carefully prepared and elaborate report—the only complete one on the matter that was ever made, has recently been submitted to the present Commissioner, Mr. Gilroy. In it Mr. Hering makes a detailed statement of the present condition of the sewers, and also expresses his opinion as to the measures that should be adopted for their improvement and the best means of keeping them in good condition. Upon the subject of flushing and cleaning he believes that rainstorms cannot be relied upon for this purpose, and that repeated flushing with properly proportioned quantities of water is required for pent-up sewage. By this process, he says, sewage may not only be kept much cleaner than at present, but stoppages and floodings caused by the accumulation of deposits can be reduced to a minimum. Deposits become too firmly compacted, he claims, to be carried off by the average storm; while flushing, on the other hand, prevents deposits from accumulating. In other cities, according to the character of the district in which the sewers are placed the periods of flushing vary from once a fortnight to about once a year. In some places automatic flush tanks are used which discharge once or twice a day. The sudden discharge of a large quantity of water seems to him to be the thing desired. In the case of those sewers in the older part of New York which cannot be flushed because their interior surface is rough and irregular, manual labor is the only remedy until they can be rebuilt. Mr. Hering advises that gates should be provided in the main sewers in order to stop the ordinary flow of water for five or six hours before flushing; no other provision being necessary for accomplishing this purpose. The gates could be closed in the morning, and opened in the afternoon. He claims that if all the brick sewers were thus cleansed the yearly expense would be about $11,000; while at present only about one-twentieth of the brick sewers are cleansed once a year, at an expense of over $23,000.

Chief Engineer Horace Loomis, in charge of the Bureau of Sewers, in commenting on this part of Mr. Hering's report, has stated that he should be very much pleased to give his device for flushing a trial, but that the expense would be greater than Mr. Hering supposed. "According to his estimate," Mr. Lewis said, "it would cost about $21,000 a year to clean all the modern brick sewers twice a year and all the pipe sewers four times a year. For the construction of the gates which he recommends, however, the original outlay would be quite large. It would probably cost about $250 each for the gates and flushing chambers, and as a gate would be required for every thousand feet, this would impose an expense of $1,250 for each mile of sewer. As there are about 400 miles within the city, the original cost of providing for this manner of cleaning and flushing would be $500,000, and the interest on that outlay ought to be considered a part of the expense of operation. These figures will indicate that whatever may be done in this direction will have to be accomplished gradually."

Having mentioned one particular sewer which he thought especially adapted to make an experiment of the gate system in, he stated that if on trial it should be found to be successful there, there would be reason to hope that the department might be allowed to extend the system to other parts of the city. He then went on to say that he could foresee more possible dangers from the new system. Whenever sewers were extended through a low-lying district in which the cellars were below the sewer level, he thought a flushing would make things very uncomfortable

for people living above these cellars. There would also have to be special care taken, he said, that the flushing should take place when the tide was just right. Moreover, a shower would be liable to cause flooding when the gates were closed, and he therefore thought that with any such change in the sewer system back-water valves ought to come into general use.

It is certainly a curious circumstance that so soon after the interview with Dr. D. Tilden Brown, referred to in THE JOURNAL of September 7th, the Doctor should have committed suicide. On Wednesday night, September 4th, the unfortunate man hanged himself in his barn at Batavia, Ill. A few years ago Dr. Brown was well known to the medical profession in this State and throughout the country. For twenty years previous to 1875 he was Superintendent of the Bloomingdale Asylum, the department for the insane of the New York Hospital, and was regarded as a high authority in mental diseases. In 1875 a New York newspaper began a fierce assault upon the Bloomingdale Asylum because of alleged abuses existing there, and it is said that this attack so affected Dr. Brown that his health failed and his mind became unbalanced. In this condition his wife took him abroad for treatment. His insanity was of a mild form, and in an Edinburgh asylum a partial cure was effected. On their return to America he was placed in an asylum in Illinois, where his wife secured the position of matron for herself, and here what was believed to be the complete cure of the case was brought about. His son, Dr. F. T. Brown, lives in this city.

In an interview published since the suicide Mr. Charles E. Strong, who for the past twenty years has been one of the Board of Governors of the New York Hospital, thus refers to Dr. Brown and his sad history: "He was as competent a superintendent as Bloomingdale ever had. At the time of the exposure of alleged outrages there the confidence of the Governors in his integrity was never shaken. His only fault was that of over-confidence in his subordinates. He was a particularly sensitive man, however, and it was undoubtedly these attacks which made it necessary for him to go abroad for treatment. Since his return to America he has been in constant communication with his friends here. About two weeks ago a New York newspaper printed a sensational story, the substance of which was that Dr. Brown, the old Superintendent of the Bloomingdale Insane Asylum, who had himself become insane in 1875 and gone to Edinburgh for treatment, where it had been supposed by all his friends that he had died, had been discovered living on a farm at Batavia. If Dr. Brown has committed suicide, I believe it was for the reason that this story, in which the saddest portion of his life was reviewed, was called to his attention, and the shock brought back his old mental affection. He was highly respected in Batavia, where he was practicing medicine with success."

Another of the now often repeated demonstrations of the force of an artificial electric current to destroy life was recently afforded in the dynamo room of the East River Electric Lighting Company in this city, where an experienced electrician, the Superintendent of Construction of the company, accidentally came in contact with the current and was struck dead in an instant. It was an alternating current and its force was in the neighborhood of 1,000 volts, considerably less than it is proposed to use in executing criminals under the new law. The final argument on the question of the constitutionality of this law, a question which involves the disputed power of an alternating current to kill, is about to be held at Buffalo, and this case may have considerable weight in the argument. In the experiments there to be made it is proposed to use an alternating current of from 1,500 to 2,000 volts, and it is contended by the contestants that even this force would not be sufficient to surely and instantaneously destroy life. P. B. P.

Multiple Gestation.

To the Editor:—The recent death of Mrs. Michael Dress, of Schuylkill Haven, recalls to my mind the following facts concerning her life:

I do not know at what age she was married, but during her marital relations she was the mother of the rather remarkable number of *twenty-eight* children at full term. The record of births I do not recall, but I do know that out of this number there were but two single births—the balance were in twins upon several occasions, triplets twice or three times, and quadruples once. The quadruple birth the children lived to grow up, and one of the number, a female, died from traumatic peritonitis some few years ago. The mother was a large, stout woman, and reached the age of over sixty years. Her habits of life were those peculiar to hard out-door work and plenty of it.

As this case possesses some features worthy of record, I am glad to have possession of the facts in view that the case may be made an item of interest.

I presume it would properly come under the head of "Progressive Uterine Fecundity."

Very truly,

D. W. BLAND, M.D.

Pottsville, Pa., September 17, 1889.

PROF. RAY LANKESTER, who was attacked with serious illness while in Paris, has, under the care of Dr. Faure Miller, now completely recovered and has returned to England.

MISCELLANY.

THE GOLDEN BELT DISTRICT MEDICAL SOCIETY will hold its Fall Meeting at Salina, Kan., on Thursday next. Sessions at 2 P. M. and 7:30 P. M.

SCARLET FEVER has become epidemic in Birmingham, Eng. The situation is serious. Most of the schools are closed, and the hospitals are so crowded with patients that auxiliary wards must be opened.

THE AMERICAN PÆDIATRIC SOCIETY at Baltimore, elected the following officers: President Dr. J. Lewis Smith, of New York; secretary, Dr. W. D. Booker, of Baltimore; recorder, Dr. William P. Watson, Jersey City; treasurer, Dr. Charles Warrington Earle, of Chicago, and Dr. L. Samuel Holt, member of council.

THE DESTRUCTION OF MOSQUITOES.—*The Microscope* says that Robert H. Lamborn has placed in the hands of Morris K. Jessup, of the American Museum of Natural History, New York, the sum of $200, to be paid in three prizes of $150, $30 and $20, for the three best essays on the destruction of mosquitoes and flies by other insects. It is suggested that the dragon fly is an active, voracious and harmless "mosquito hawk," and that it might, if artificially multiplied, diminish the number of smaller insect. A practical plan is called for in the breeding of the dragon fly or other such destroyer in large numbers, and its use in the larva, pupa or perfect state, for the destruction of mosquitoes and flies in houses, cities and neighborhoods.

DIPHTHERIA EPIDEMIC.—The prevalence of diphtheria in Marion, Ind., has created such alarm that the public schools were ordered closed last Monday for one week. About a dozen deaths have occurred. The point of greatest danger is believed to be passed, but the schools were ordered closed as a precautionary measure.

AN EPIDEMIC of a disease resembling dysentery has been raging near Meadowville, W. Va. Twelve persons have died. About twenty other cases are reported.

JACOB RODGERS died last week at Pittston, Pa., aged 111 years. He was born near Pittsburg, January 1, 1778. He was in the war of 1812, and was wounded at the battle of Lundy's Lane. By his first wife he was the father of fifteen children, and by his second of six. Nine of the twenty-one are living, one of them being 82. Mr. Rodgers had used tobacco for nearly 100 years. Until a few months ago he read without spectacles.

SHELBY COUNTY MEDICAL SOCIETY.—The next meeting of this Society will take place on Monday, October 14, 1889, at the Ray House, Shelbyville, Ind. The following papers will be read and discussed: "Management of Normal Labor, with Particular Reference to the Employment of Antiseptics in Midwifery Practice," by Dr. J. W. Green, Shelbyville; "The Use of Ergot in Labor," by Dr. S. L. Strickler, Boggstown; "Practical Obstetrics," by Dr. John Moffett, Rushville; "Delivery of the Placenta, with Report of Cases of Adherent Placentæ," by Dr. M. R. Gilmore, Boggstown; "Management of Shoulder Presentations," by Dr. Edward F. Wells, Shelbyville; "Post-partum Hæmorrhage, with Report of Cases," by Dr. J. W. Bowlby, Marion; "Puerperal Eclampsia, with Report of Cases," by Dr. T. R. Rubush, London; "Management of the Perineum, with Report of a Case of Rupture," by Dr. I. W. Trees, Smithland.

LETTERS RECEIVED.

Dr. M. J. Dudley, Sonoraville, Ga.; Dr. G. L. Morgan, Wichita, Kan.; Dr. S. P. Heilman, Heilmandale, Pa.; Dr. D. A. K. Steele, Chicago; J. B. Lippincot Co.; Philadelphia; Munn & Co., New York; Dr. Landon B. Edwards, Richmond, Va.; Dr. A. L. Hummel, Philadelphia; Dr. G. Betton Massey, Philadelphia; Dr. James H. Jackson, Dansville, N. Y.; Henry Bernd & Co., St. Louis, Mo.; Dr. C. C. Hunt, Dixon, Ill.; J. Walter Thompson, New York; Dr. C. R. Reed, Middleport, O.; Dr. G. L. Collins, Providence, R. I.; Dr. H. Cushman, Stanton, Neb.; Ketteredge & Moran, Ann Arbor, Mich.; Dr. J. W. S. Gouley, New York; Mast, Crowell & Kirkpatrick, Springfield, O.; Evening Bulletin, San Francisco, Cal.; Dr. J. C. Wieson, Philadelphia; Dr. F. M. Pendleton, Magnolia, Ill.; Dr. B. T. Fisher, Indianapolis, Ind.; Dr. W. Freudenthal, New York; Dr. R. R. Walker, Paris, Tex.; Doliber Goodale & Co., Boston; Dr. Wm. C. Dabney, University of Virginia, Va.; Dr. Dwight L. Hubbard, New York; Dr. Max Thorner, Cincinnati, O.; Dr. J. H. C. Simes, Philadelphia; Oneita Spring Co., Utica, N. Y.; Roseberry Nutrolactis Co., E. Merck, New York; Dr. Mary M. Cutler, Pomeroy, O.; Dr. I. E. Atkinson, Baltimore, Md.; Surgeon-General John B. Hamilton, Washington, D. C.; J. B. Lippincott Co., Philadelphia; Dr. L. H. Wood, Denver. Col.; Dr. John S. Lewis, Dubuque, Ia.; Dr. K. M. F. Sandberg, Chicago; Dr. R. J. Dunglison, Philadelphia; Ward Bros., Jacksonville, Ill.; Dr. F. M. Thomas, Samantha, O.; Dr. A. K. Conrad, Portageville, Mo.; Dr. B. F. Hart, Marietta, O.; E. Steiger & Co., New York; Dr. W. H. Geddings, Bethlehem, N. H.; Dr. W. R. Tipton, Las Vegas, N. M.; Dr. Martha C. Holmes, New York; Dr. George A. Dixon, New York; Dr. F. King, New York; Dr. John O. Roe, Rochester, N. Y.; *The Lancet*, London, Eng.; H. Hornfeld, Berlin, Germany; Parke, Davis & Co., Detroit, Mich.; Dr. A. M. Vail, Rock Rapids, Ia., Dr. Geo. T. Welch, Keyport, N. J.; J. Astier, Paris, France; George Kiel, Philadelphia; I. Haldenstein, New York; Dr. J. Haller, Lanark, Ill.; Lea Bros. & Co., Philadelphia.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from September 14, 1889, to September 20, 1889.

Col. Andrew K. Smith, Surgeon U. S. Army, granted leave of absence for fourteen dags on surgeon's certificate of disability, by direction of the acting Secretary of War. Par. 1, S. O. 214, A. G. O., September 14, 1889.

By direction of the acting Secretary of War, First Lieut. Freeman V. Walker, Asst. Surgeon, is relieved from duty in the Dept. of Texas, and will, upon the expiration of his present leave of absence, report in person to the commanding officer, Jackson Bks., La., for duty at that station, and by letter to the commanding General, Div. of the Atlantic. Par. 2, S. O. 212, A. G. O., September 12, 1889.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending September 21, 1889.

Medical Inspector G. S. Beardsley, granted six months' leave, with permission to go abroad.

Surgeon M. L. Ruth, order granting furlough revoked and placed on waiting orders.

Medical Director Hudson, Medical Inspector Woods and Surgeon Dickinson will continue as President and members of an Examining Board for examination of applicants for the position of Asst. Surgeon in the Navy at San Francisco, Cal., until June 30, 1890.